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Monthly Message

In the next four Messages we will consider briefly four items of common interest to the medical profession, two of which affect the civilian economy. The first two—(1) medical and dental personnel and (2) the MEND Program—were of grave concern and much in the public eye in 1954; (3) the Interdepartmental Committee on Nutrition for National Defense (ICNND) and (4) the Joint Committee on Aviation Pathology, have since come into being and have made extraordinary progress.

Five years ago the problem of medical and dental officer personnel for the armed services was acute. Three agencies had various prerogatives of control: The Selective Service System; the Health Resources Advisory Committee; and the Assistant Secretary of Defense (Health and Medical) in collaboration with the Assistant Secretary of Defense (Manpower, Personnel and Reserve). Approximately 50 percent of our medical graduates had already fulfilled their military obligation either in World War II or subsequently. From 1954 to 1959 our medical schools increased both in number and in their graduating classes. From 1950 to 1954, because of the Korean conflict, it was necessary to draft 4,700 and 2,700 physicians in alternate years. This required that many in the Reserve were called upon for extra periods of service. Those who had acquired their medical education at the expense of the Government or had previously been declared essential were reviewed: many were called, ofttimes with much wailing at the wall.

With the cooperation of Selective Service, the Advisory Committee, and the Military, (1) the Armed Forces Reserve Medical Officer Commissioning and Residency Consideration Program (Berry Plan), and (2) Senior Medical and Dental Student Programs were initiated. The senior programs provided that students be commissioned during their final year in medical and dental school as second lieutenants with full pay and allowances; in return these graduates were obligated for an extra year of service beyond the usual 2 years. (3) The residency programs of the armed services have also been important. These programs, together with the increasing number of graduates who had never had military service, produced immediate improvement. Result: no draft for dental officers for the past 4 years and none for medical officers for 3 years; nor will there be a draft for either in the ensuing year. The annual deficit unfilled by these programs is approximately 1,700 medical officers; thus the former peaks and valleys have disappeared.

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Foreword

The *United States Armed Forces Medical Journal* is a monthly publication of professional and administrative information for medical personnel of the Department of Defense. The Assistant Secretary of Defense (Health and Medical) and the Surgeons General of the United States Army, Navy, and Air Force invite members of the regular and reserve medical services, the professional consultants of the military departments, and other physicians and health scientists with an interest in Department of Defense activities to submit manuscripts for publication in this *Journal*.

FRANK B. BERRY, M.D.
Assistant Secretary of Defense

LIEUTENANT GENERAL LEONARD D. HEATON
Surgeon General, United States Army

REAR ADMIRAL BARTHOLOMEW W. HOGAN
Surgeon General, United States Navy

MAJOR GENERAL OLIVER K. NIESS
Surgeon General, United States Air Force

PORTRAIT OF PRESIDENT EISENHOWER

This portrait of President Eisenhower was painted by Thomas E. Stephens, one of America's foremost portrait artists, and hangs in the Union League Club of New York. Completed in the fall of 1959, it is the most recent of several portraits of the President by this artist. Mr. Stephens has painted portraits of many outstanding leaders of industry, the five star General Officers of the Army, several of the Surgeons General of the Army and Air Force, and many other distinguished Government officials. The photograph of the portrait of the President was made for the tenth anniversary number of the United States Armed Forces Medical Journal by the staff of the Medical Illustration Service of the Armed Forces Institute of Pathology.

THE WHITE HOUSE

WASHINGTON

November 7, 1959

Dear Colonel Benford:

It is a pleasure to join in the observance of the 10th Anniversary of the United States Armed Forces Medical Journal.

Over the years, military medicine has served the Nation well. It has provided the highest quality of medical service in its particular field of responsibility, and it has made notable contributions to the whole knowledge of disease prevention and control.

Through cooperative effort, the American people, civilian and military alike, have achieved an unprecedented level of good health. Armed Forces medical personnel have played and continue to play an indispensable role in this effort. And for its part in the achievements of the past decade, I am delighted to salute the United States Armed Forces Medical Journal.

With best wishes,

Sincerely,

Dwight D. Eisenhower

Colonel Robert J. Benford, USAF, MC
Editor
U. S. Armed Forces Medical Journal
Washington, D. C.

Army Medicine: Past, Present, Future

LIEUTENANT GENERAL LEONARD D. HEATON
SURGEON GENERAL, UNITED STATES ARMY

I CONSIDER IT A DISTINCT PRIVILEGE to contribute to the tenth anniversary issue of the *United States Armed Forces Medical Journal*. As successor to the *Bulletin of the U.S. Army Medical Department* and the *United States Naval Medical Bulletin*, this periodical has provided an excellent platform for the exchange of valuable professional information and ideas among the personnel of the 3 military medical services. On behalf of the U.S. Army Medical Service, I extend congratulations on the occasion of this birthday and sincere best wishes for continued success.

The decade that has passed since the first edition of the *Journal* was published has been an unusually eventful one. Among the many momentous developments and events that have had a profound impact upon military medicine, in addition to progress made in integrating the planning of the 3 medical services, have been the Korean conflict and the seemingly endless cold war, the North Atlantic Treaty Organization, the changing concepts of warfare in the new atomic age, intercontinental ballistic missiles, and more recent flights into space of living primates, marking what might appropriately be called a prelude to space medicine. In the field of legislation we have had such vital measures as the doctor draft, the Dependents' Medical Care Act, and the Medical and Dental Officers' Career Incentive Act of 1956. Directly affecting operations in the Army

Medical Service have been the establishment of the Office of the Deputy Chief of Staff for Logistics, the single manager system for medical materiel, the U.S. Continental Army Command, and the Army Command Management System, of which the Hospital Command Management System is a part.

We are proud of the achievements of the Army Medical Service during these 10 turbulent years, just as we are proud of the progress made over the 184 years since its origin. The problems we face in this infant nuclear age and those we shall face during the next 10 years will grow in scope and intensity; but I am confident that, in line with the tradition of the Army Medical Service, we will face up to these problems and successfully resolve them.

To accomplish our mission of conserving fighting strength and preparing for mobilization in the event of war, we must move forward on a broad front. As I stated previously and will continue to emphasize, success in meeting our grave responsibilities to the Nation rests on 5 broad objectives—I call them the 5 pillars of military medicine: (1) the practice of medicine, including the art of medicine as well as curative and preventive medicine; (2) field medicine, or combat readiness; (3) medical education and training; (4) medical research and development; (5) medical administration and management. I firmly believe that true progress can be achieved only by working to attain the highest degree of perfection in all of these objectives, and by simultaneous improvement in every facet of our operations. Our goal, which embraces each of these 5 essential areas, is the practice of total medicine. Faced with the complexities of modern weapons systems and the ultrasophisticated weaponry yet to come, we dare not lose sight of the brief yet immortal words of Alexander Pope: "The proper study of mankind is man."

We of the military medical services need to make certain that man—the ultimate weapon—is never subordinated to his environment or to a system. As we move into space, the depths of the ocean, or the bowels of the earth, we must have the knowledge necessary to enable man to maintain his superiority over his environment. In this respect the practice of total medicine can recognize no artificial barriers, no limitations that would serve to restrict our knowledge of either man or his ultimate environment.

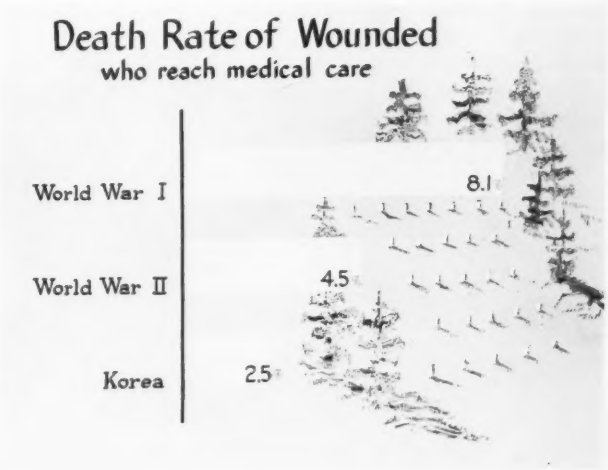
Furthermore, our concern and interest in the health of the individual soldier and the system and environment within which he functions carries a broad responsibility for an equal interest and concern for his family. During the 10 years in which the *Journal* has existed, we have become aware that we are no longer dealing only with the man in uniform. We are dealing with family units. Since World

War II both the number of families in the service and the size of individual families have constantly increased and the upward trend in the ratio of dependents to military personnel now with us shows no sign of turning downward in the foreseeable future. We must never overlook this fact in our planning.

"Our concern and interest in the health of the individual soldier and the system and environment within which he functions carries a broad responsibility for an equal interest and concern for his family."

An anniversary such as this should not be minimized. It gives us an opportunity to look into the future, but it also carries with it an equal requisite to review the past. We stand where we are today on the basis of what we have accomplished in the past. Our accomplishments in the future will, in large measure, depend upon how well we build on the present. A comprehensive review of the notable accomplishments of the Army Medical Service over even the brief span of a year or two is impossible in this space. I think it well to note, however, a few Army medicine highlights of the past decade, and to take a glimpse into the future.

One outstanding accomplishment has been the improvement in the quality and professional stature of individuals in all the corps which comprise the Army Medical Service. The basic reason for this improvement is our professional education and training program.



"We stand where we are today on the basis of what we have accomplished in the past. Our accomplishments in the future will, in large measure, depend upon how well we build on the present."

This program was aggressively supported and carefully nurtured by Major General Raymond W. Bliss, MC, USA (Ret.), surgeon general of the Army at the time the *Journal* came into being. In the years immediately following World War II, the Army Medical Service was faced with the formidable task of rebuilding. Many believed that we had made a serious error during the war in trying to turn all of our career medical officers into administrators. The surgeon general was convinced that the Army Medical Service could not perform its peacetime mission nor prepare for war effectively without sending many of our medical officers to civilian institutions for postgraduate study. Keenly aware of the trend toward greater specialization in medicine, General Bliss and his staff realized that if the Army were to attract qualified young physicians and dentists to careers in military medicine, it would have to provide them with the opportunity to continue their professional education in the service.

Consequently, during this early period of the *Journal's* history, the carefully fostered postgraduate training program became a permanent part of the military medical establishment. This abrupt turn in military medicine came at an opportune time. Within a few years war was suddenly thrust upon us in Korea, and our residents constituted the only source of quickly available medical officers. Within a matter of days more than 230 residents had been flown to the Far East, where they served with distinction until we were able to expand our medical resources sufficiently to permit them to return to their training.

"The improvement in the quality of our professional care was effectively demonstrated in Korea."

It was also during this period of the *Journal's* early history that the urgency for closer ties between military and civilian medicine was foreseen and the extensive program for utilizing civilian consultants to assist in the training of our young physicians was developed. The contributions of these civilian consultants toward improving patient care and raising our professional standards have been of immeasurable benefit to the Army. At the same time, a steady increase in stature and value to the Army Medical Service of our other officers—dentists, nurses, veterinarians, the officers of the Medical Service Corps, and members of the Medical Specialist Corps—has resulted from the greater emphasis placed upon advanced education and training.

The improvement in the quality of our professional care was effectively demonstrated in Korea. The excellence of the Army's

medical performance there has been attested so often that it need not be repeated here. Each successive year since the Korean conflict—except for a slight setback in fiscal year 1958, when we had the bout with Asian influenza—we have been able to boast of the healthiest Army in our recorded history. The noneffective rate among our troops has been constantly shrinking. We have recognized and have taken action to meet the urgent need for improving the practice of the art as well as the science of medicine. Patients in Army hospitals receive professional care equal to the best in civilian medicine. In the worldwide system of Army hospitals not a single hospital considered for accreditation by the Joint Commission on Accreditation of Hospitals has failed to receive it.

It is in the construction program that we are lagging behind in the care of our patients today. Of the 51 Army hospitals operating in the continental United States, 17 either have been recently replaced or are in various stages of replacement, from design to actual construction. Of the others, 25 need to be replaced as soon as possible. Similarly, we need rapid replacement of other medical facilities, such as Army area laboratories, dental clinics, dispensaries, nurses' quarters, and enlisted men's barracks. Only 2 modern dental clinics have been constructed since World War II. Other things being equal, the most scientific and efficient medical care is given in modern facilities, and I intend to pursue energetically all elements of the construction program to assure a proper modern environment for the care and treatment of patients.

There are many areas in which the Army Medical Service is doing a splendid job today, but we are exerting increased efforts to do a better job tomorrow. Our capability to perform cardiac catheterization and open-heart surgery is being rapidly expanded. Isotope clinics and pulmonary physiology testing are being made available in more and more Army treatment facilities. An aggressive program is being conducted to strengthen and modernize outpatient facilities in keeping with changing concepts of medical care. Army psychiatrists have made notable advances in strengthening and expanding preventive measures that have sharply reduced noneffectiveness resulting from psychologic reasons. We are further expanding education and training programs in view of our developments and requirements, both in professional and strictly military fields.

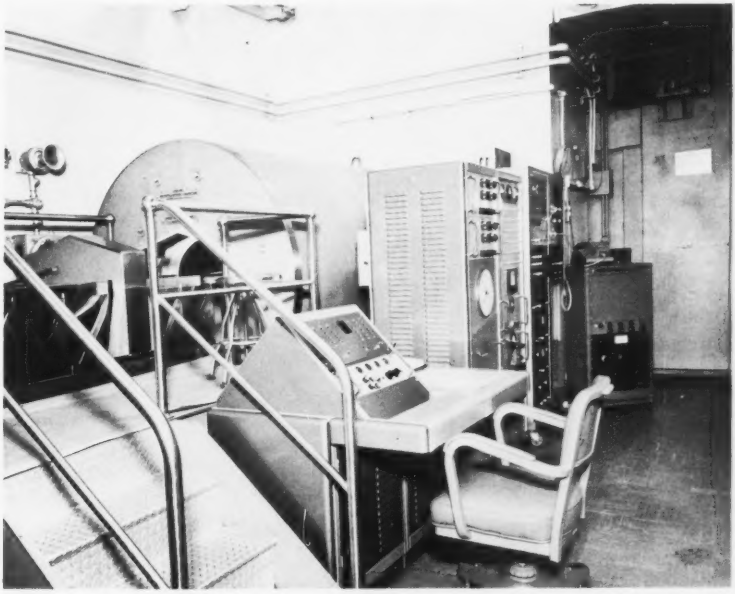
The Department of the Army is developing a peacetime whole blood program that will encompass blood processing from collection point to patient, organized so as to allow rapid expansion to meet current operational needs or to cope with any emergency that might arise. In an effort to raise our nursing standard, a department of nursing

has been created at the Walter Reed Army Institute of Research to conduct research in the practice of nursing. We have begun to develop equipment to enable veterinary field units to detect and evaluate the amount of radioactivity in subsistence, in order to advise the surgeon concerning its acceptability for consumption.

"Our capability[4] to perform cardiac catheterization and open-heart surgery is being rapidly expanded."

In a relatively brief span of dealing with environmental hazards, Army medicine has passed through a spectrum of experience from the purely physical and anatomic through the microbiologic era, and is now well into the phase of chemistry and ionizing radiation. In the future practice of military preventive medicine, increasing importance

will be attached to problems of evaluating and reducing radiation hazards from military and nonmilitary sources. An intensive survey is now under way to determine our capabilities in this field and to establish a basis for further expansion. We are also exerting considerable effort to identify hazards associated with the fuels and oxidizers used in the Army's missile program, and have been studying the adverse environmental factors at guided missile sites in order to develop appropriate control measures. We are still seeking to identify the potential hazards attributed to microwave radiations, and we are actively occupied with the problem of protecting personnel from harmful exposures to ionizing radiation in their work environment.



"In the field of nuclear medicine, we are making constant advances in casualty assessment in nuclear warfare, in basic understanding of radiation pathology, and in chemoprophylaxis against radiation sickness, where encouraging results are being obtained."

In the past most of us in the medical services have been inclined to consider preventive medicine largely a matter of the prevention of disease and disability. I believe the time has come for us to modify this traditional concept, accepting the responsibility for going beyond

this objective. We must develop knowledge required to insure that the military man is not only free from disease and obvious disability, but is also in the finest physical, mental, and emotional condition, able to perform his mission with the greatest possible efficiency.

In the field of nuclear medicine, we are making constant advances in casualty assessment in nuclear warfare, in basic understanding of radiation pathology, and in chemoprophylaxis against radiation sickness, where encouraging results are being obtained. Casualty assessment, the key to planning for nuclear warfare, is of vital importance to the commander in the field, to personnel, to other technical services, and to the medical service in determining patient load, medical supplies required, and organizational structure. We hope to develop a workable assessment system within the next 6 months.

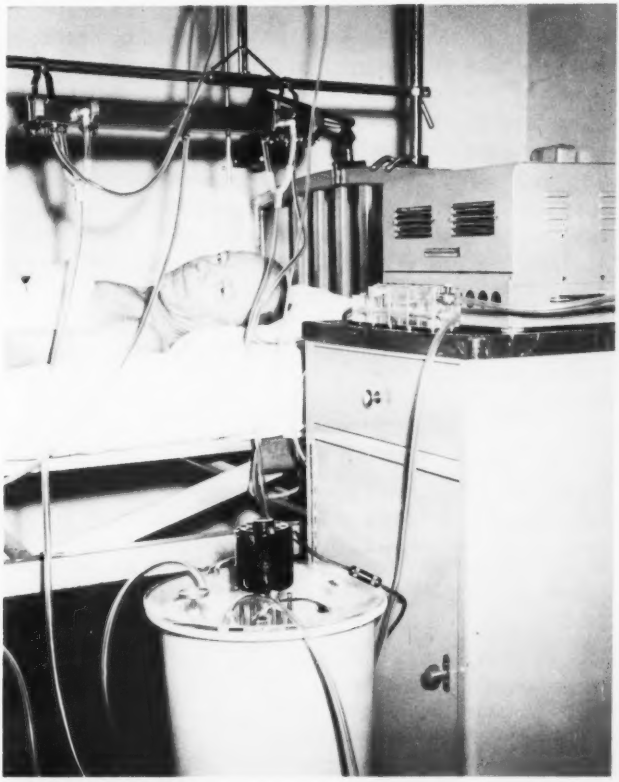
As new concepts and new doctrines are developed we are incorporating them into our existing structure as rapidly as possible. In order to provide better support under the current pentomic concept of Army divisions, we are conducting a program for the reconstitution of our field hospital assemblies. Recognizing that our present medical facilities are insufficient to meet medical requirements resulting from nuclear attack, we are emphasizing training and self (buddy) care and the use of ancillary medical personnel under professional supervision to provide definitive treatment under such conditions. To support this concept, we have established, in conjunction with the other medical services, a medical materiel program for nuclear casualties through which we preposition emergency medical treatment units with troops for use in event of nuclear attack.

The Army Medical Service is increasing its interest and capabilities in aviation medicine. Army aviation is growing rapidly. More than 6,000 Army aviators are now on duty, and 43 aviation medical officers and 11 flight surgeons are engaged in the actual practice of aviation medicine.

Although we have no existing research program directed primarily to space medicine, we do have in our research and development program some activities that may be applicable. The Army medical research and development program is especially strong in the psychiatric and psychophysiologic approaches to this field, and it seems possible that we may be called upon to make some contributions in this area. Also, the Army's nutrition research laboratory is unique in the military services. It seems inevitable that nutrition problems will be most important, and the Army Medical Service is capable of the required research in this field.

More effective cooperation in and control of our worldwide research activities are being achieved as a result of the establishment in August

1958 of the U.S. Army Medical Research and Development Command. Last year we collaborated with the Navy in a project concerning biomedical aspects of missile transport, which resulted in a historic achievement—the successful flight of monkeys into space. Within the past few years, Army researchers have made significant advances in many other fields, including research on burns and on the use of



"From our research programs have come . . . the development and improvement of the artificial kidney."

chloramphenicol and other broad-spectrum antibiotics in treating typhus fevers, other rickettsial diseases, and influenza. In 1957, Dr. Maurice Hilleman and his associates at Walter Reed Army Institute of Research succeeded in isolating a new strain of influenza virus from

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specimens collected in the Far East, which enabled manufacturers to develop an effective new vaccine before the Asian influenza pandemic reached America. From our research programs have come better methods for early diagnosis of infectious disease; the development and improvement of the artificial kidney; the jet injection gun, which provides a safe, painless, and fast method of immunization in mass inoculation programs; and the first really effective method of artificial respiration, the mouth-to-mouth method. In dental research the development in 1958 of the jet-injection method of local anesthesia represented the first basic change in injection technic in the history of dentistry.

We in the Army Medical Service feel that during these past 10 years we have come a long way toward our goal of better military medicine. As we look back today, we realize with astonishment that many of the dreams and aspirations of a decade ago have become realities. In the fast-moving world in which we now live, no one can foresee what the next 10 years will bring. I am sure that when the *Journal* celebrates its twentieth anniversary great progress will have been made toward the realm of what we consider today to be mere science fiction.

THE SOCIAL CLIMATE OF EPIDEMIOLOGY

Because of the changing universe about us, I find it difficult to visualize a world without disease and maladjustment. The atomic age, the exploration and population of space, of itself will create new epidemiological and ecological boundaries. Epidemiology is basically an investigative field representing the application of the scientific method to problems of population groups generally. Various points of reference may be taken in mapping out the general ecology of man. Epidemiology thus moves with disease and disorder as its index. Its approach to human ecology is to detect, to measure, to understand the harmful influences which impair the relationship of man with his environment. It is a study of pathogenesis, not just observation. While trying to obtain adequate measurement of these stresses, the effort should lead to the better definition of health, to the better design of procedures for maintenance of health and for the prevention of its deterioration. Never before has the social climate blended so well with the biological and physical approaches to make population investigations possible and popular. But in undertaking such studies one must guard against those harmful influences which may lead to popular but dubious conclusions and to give attention to the constant need for controlled data which permit valid interpretations and conclusions.—THOMAS FRANCIS, JR.: The Epidemiological Approach to Human Ecology. *The American Journal of the Medical Sciences*, June 1959.

Naval Medicine: A Decade of Progress

REAR ADMIRAL BARTHOLOMEW W. HOGAN
SURGEON GENERAL, UNITED STATES NAVY

CONGRATULATIONS are due on this tenth anniversary of the establishment of the *United States Armed Forces Medical Journal* as a joint publication of the Army, Navy, and Air Force. From its inception, the *Journal* served as an outstandingly effective medium for disseminating professional information to medical and dental personnel of the armed services, and over the years there has been a continuous trend toward ever higher quality in the content and format of the material presented.

This splendid record is a gratifying demonstration of the efficiency and economy resulting from tri-service cooperation under the policy-making guidance and coordination of the Office of the Assistant Secretary of Defense (Health and Medical). Editors and contributors representing every branch of the Armed Forces have made joint use of facilities provided by the Navy as management agent, working together in complete harmony to render an important service to all three of the armed services. In no other way, with so modest an expenditure of money and manpower, could so much timely and valuable information have been made available to all medical department personnel, wherever they were stationed in any part of the world.

Throughout the decade that has seen the *Journal* achieve its present high status, the Medical Department of the Navy made continual and at times very rapid progress

in protecting the health of the Navy and Marine Corps and in carrying out an extensive program of specialized training and research. Standards of professional care for patients were continually raised, and the health of naval operating forces reached a level never before attained. In calendar year 1958, in spite of the assignment of many of our men to areas with endemic disease problems or with virulent epidemics among the indigenous populations, the noneffective rate, for men absent from duty for medical reasons, was at the unprecedented low of 12.5 per 1,000. This lowest rate in the history of the Navy represents a tremendous saving in manpower. Had the same noneffective rate prevailed in 1958 as at the beginning of the decade, there would have been about 2 million additional sick days.

The changes in military medical needs and requirements in this past decade were greater, perhaps, than ever before. Many new conditions were encountered in the Korean conflict, and entirely new problems were posed by a host of recent developments such as the advent of nuclear-powered submarines and supersonic aircraft. To meet these changes and new requirements, the research program in all its ramifications has, of necessity, become a major effort.

Naval medical research is carried out in 17 laboratories and at 10 clinical facilities. There are also 9 research contracts in force with universities or nonprofit research foundations. Most of the laboratories are staffed by a relatively small group of military personnel working with a larger number of civilian scientists. The research program is devoted to areas of prime interest to the naval medical service, program guidance being obtained from the Naval Medical Research Committee of the National Research Council. Continual review by the Department of Defense Coordinating Committee on Sciences helps to prevent unnecessary duplication of effort among the armed services and other government agencies, and there is also close technical coordination with the National Institutes of Health, the Armed Forces Epidemiology Board, and the National Academy of Sciences, as well as direct liaison with the Army, Air Force, and Public Health Service.

The largest laboratory is, of course, the Naval Medical Research Institute (NMRI) at the National Naval Medical Center, Bethesda, Maryland, where a staff of 291 scientists and support personnel are engaged in studies that include the mechanisms of temperature regulation, the effects of vibration, and the physiology and toxicology of the closed environment. In the field of heat stress, a unique scientific tool is available at NMRI for studying human tolerance to the kind of stress routinely met in deserts or the tropics and soon to be encountered in space craft. This device, a human gradient calorimeter (fig. 1), has

a wide range of versatility for advancing our knowledge of man's reaction to all types of thermal environments.

Basic studies on thermal stress at NMRI led to applied field studies at Twenty-Nine Palms, California, and Camp Lejeune, Parris Island, South Carolina, that resulted in an 80 percent reduction in heat casualties during hot-weather training operations. The importance to operating forces of such studies and of investigations on the physi-

Figure 1. Interior of human gradient calorimeter with subject in resting position.

ology of acclimatization is seen from the recent observation that troops suddenly flown from North Carolina to the Canal Zone showed a 70 percent decrease in combat efficiency for as long as 24 hours after their arrival in Panama. This past year, further studies with the calorimeter led to the significant observation—of great importance to astronautical medicine—that the principal factor controlling heat regulation is the temperature of the blood in the midbrain, rather than stimuli from the skin.

In January 1959, the U.S. Navy Toxicology Unit was established at NMRI to study toxicity and health engineering problems encountered aboard ships or in the design and use of new weapons systems. Rapid technologic developments have brought into use many untested but potentially toxic materials. Rocket fumes aboard ships and new hydraulic fluids used on airplane carriers and submarines are among the items requiring careful evaluation in order to protect personnel.

At the very beginning of the decade, fundamental studies of the physiology of tissue transplantation led to the establishment of a tissue bank at the U.S. Naval Medical School, also at Bethesda. Research on tissue preservation and transplantation made possible notable advances in a wide variety of surgical procedures, including improved methods of treating casualties who require reconstructive surgery. The tissue bank pioneered in developing the freeze-dry process of preserving human tissues so that they could be stored at room temperatures for later clinical use. This involved subjecting the frozen tissue to a 5 to 10 micron vacuum at $-50°$ C, where ice crystals pass directly to the gaseous state and the tissue becomes so dry it cannot decompose. Tissues are also preserved in nutrient media for as long as 6 weeks. A third method of preservation, by impregnating with glycerol and keeping the tissue in dry ice, makes it possible to use the material after 6 to 12 months.

The tissue bank, which is the largest in the world and has served as a model for many similar installations, has rendered service of great value both to military medical facilities and to other governmental and civilian hospitals. The bank has performed hundreds of sterile postmortem excisions and stored many thousands of tissue deposits. The deposits shipped to all parts of the United States and many foreign countries have included bone, skin, fascia, dura mater, cornea, cartilage, and arteries.

The use of stored tissue has been a collaborative study between the tissue bank and orthopedic surgeons, both military and civilian, and over 3,000 detailed case histories are on file at the bank. Now with the establishment, in March 1958, of the Tissue Culture Division, an added laboratory tool is available for obtaining knowledge to be used in transplanting human tissues. Much has been learned by continuous observation of human bone cells growing within a flask (fig. 2). Another early achievement has been the development, in collaboration with tissue culture experts of the National Cancer Institute, of a pure strain of human skin cells that could be used in transplantation experiments. Fundamental cell research may define the immunologic factors currently limiting tissue transplantation.

The dedication at the National Naval Medical Center, in November 1957, of the nation's first all-medical nuclear reactor, with which there is associated a well-instrumented radioisotope laboratory, marked a major advance in medical capabilities. Production of radioisotopes of short half-life (I^{128}, Cl^{38}, Na^{24}, K^{42}, Mn^{156}) in close proximity to patients in whom they are used, makes possible the em-

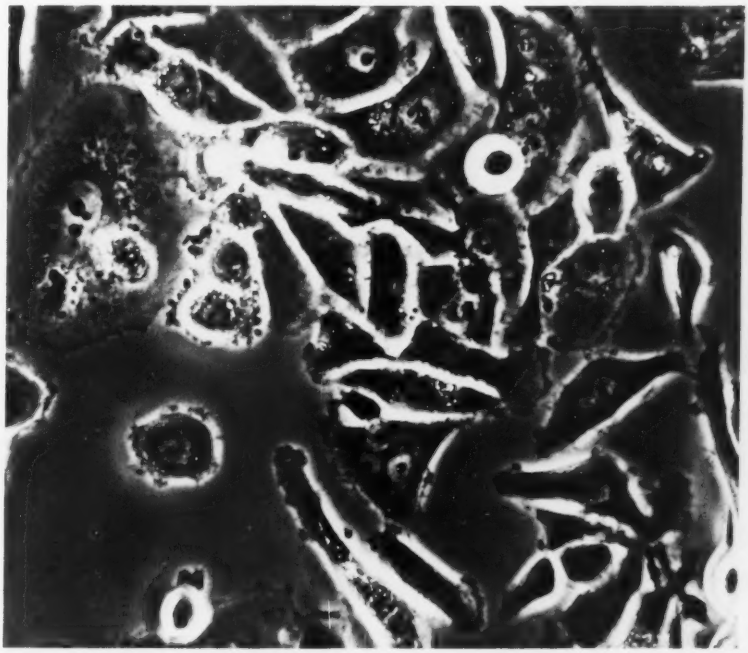

Figure 2. Detailed anatomy of human bone cells grown in tissue culture for 2 years. (Phase-contrast photomicrograph, x 1,600, reduced by one half)

ployment of isotopes that decay too rapidly to be brought in from distant points, and their use will materially decrease any radiation hazard to the patient. An added advantage is the opportunity provided by the reactor for research studies on the effects of neutron irradiation of small biologic specimens and for the instruction of personnel in nuclear medicine. The availability of the reactor and associated facilities made possible the first course ever offered in nuclear nursing. Medical centers and hospitals in the surrounding area also have benefited by being provided with short half-life isotopes.

Research at the U.S. Naval Dental School, Bethesda, has included such important contributions to the development of the dental air turbine and ultrasonic vibration instruments that the Smithsonian Institution has requested permission to display the pioneer models. More recently, there was a successful demonstration at the school of an optical fiber probe and closed-circuit television system that permits a dental operator and students or consultants to view simultaneously on a television screen selected areas inside a patient's mouth, at magnifications of up to 35 times the actual size. Such a system may have important added potentialities for viewing the inside of body cavities as an aid to medical diagnosis and treatment, or for illuminating such cavities without danger from electric sparks.

A major problem in the Department of Defense, as in civilian medicine, is the preservation and storage of blood for emergency use such as the treatment of mass casualties. At the U.S. Naval Hospital, Chelsea, Massachusetts, a special laboratory has since 1957 been evaluating possible methods, and in collaboration with the Protein Foundation, Inc., Boston, has been studying the use of red blood cells preserved in glycerol at low temperatures. Fresh blood is centrifuged to separate the red cells, which are placed in glycerol and immediately frozen. At any time up to 28 months later, rapid thawing and reconstitution in 5 percent albumin solution result in what appears to be a reasonably acceptable substitute for fresh whole blood. The oxygen-carrying capacity is about the same as that of fresh blood, and at present the medical and surgical services of the hospital in Chelsea are using reconstituted blood preserved in the manner described. Frozen blood, in addition to its potentialities for limited stockpiling, has the advantage of eliminating commonly encountered losses caused by outdating, and will allow the storage of the patient's own blood for elective surgery whenever there is a special problem of rare blood type or unusual immunologic reaction.

At NMRI, flash freezing has been studied as a possible alternative method of preserving blood. In this process, whole blood is sprayed in nebulized form into liquid nitrogen and collects as a red sand on the bottom of the container. This can be preserved apparently indefinitely at −90°C or below. Some difficulty was encountered in maintaining absolute sterility and in thawing the blood with sufficient rapidity and uniformity to prevent damage at the critical temperature range from −15°C to −4°C, where crystals tend to form, but studies of the characteristics of rapidly frozen whole blood have reached a point where a contract has been let with a commercial firm for the engineering development of the process.

Three of our research laboratories are located in close contact with operating forces, where intimate association with a military operational environment provides an immediate awareness of the fast-changing human demands of new weapons systems. Two of these laboratories, the U.S. Naval Medical Research Laboratory and the U.S. Navy Underwater Sound Laboratory, are at New London, Connecticut, adjacent to both the U.S. Naval Submarine Base and General Dynamic's Electric Boat Division.

At the Medical Research Laboratory, the areas of investigation relate primarily to human factors in submarine operations, and include physiologic factors affecting submarine habitability, auditory and visual abilities, and selection of submarine personnel. Contaminants appearing in the air of nuclear submarines, including carbon monoxide, aerosols resulting from smoking, and hydrocarbons from drying paint, are of current interest.

At New London, we have since 1946 been studying the problems of men inhabiting enclosed spaces, in particular the long-submerging submarine. The fact that our present nuclear submarines have been able to remain submerged for longer than was even dreamed of a few years ago attests to the success of these efforts. Part of the basic preparation for these achievements were studies of respiratory physiology, involving the provision of sufficient oxygen for the crew and the removal of contaminants and waste products. Obviously, space craft will present similar problems in respiratory physiology, and at New London there probably exists the most advanced body of information on this subject, along with the know-how to undertake the work, that can be found anywhere in the world. An awareness of this close relationship is seen in the fact that, in September 1958, the first International Symposium on Submarine and Space Medicine was held at New London under the auspices of the U.S. Naval Medical Research Laboratory. The meeting brought together military representatives and civilian scientists from 8 countries to integrate knowledge of the effects of atmospheric changes on physiologic systems such as the respiratory, circulatory, and central nervous systems.

Our greatest concentration of research effort in aerospace medicine is at the U.S. Naval School of Aviation Medicine, Pensacola, Florida. The location of the laboratories adjacent to the Naval Air Training Command provides an excellent opportunity to assess the human factors essential to the control of military aircraft. Basic studies are in progress on the psychology of aviation as related to selection, training, motivation, and morale, and also on the long-range effects on general health of a career in aviation. Studies of special operational interest concern survival, visual acuity, effects of high intensity noise, psychi-

atric evaluation of aviation personnel, and human factors involved in aircraft accidents.

We are proud of the fact that the first primate known to be living after having been flown into space and safely recovered is the Baker monkey (fig. 3), which was packaged and flown to a height of 300 miles in Bio-flight No. 2 under the joint sponsorship of this laboratory and the U.S. Army. Physiologic data transmitted to the earth during the flight showed that no severe physiologic reaction occurred and that the period of zero gravity did not produce a marked change in any of the functions measured. The laboratory is continuing to work on projects involving experimental animals, which will be used to assure that man will survive the experience of space flight, and a bio-package already has been developed that can be employed to test the performance of trained rats during 2 weeks of orbital flight.

Figure 3. Baker monkey and capsule in which she flew to height of 300 miles.

Among several unique pieces of equipment available in Pensacola is the human disorientation device (figs. 4 and 5), a research tool that will permit the study of combined accelerative and disorienting forces in multiple planes. This is being used in exploring the complex

problems of orientation and disorientation with which man will be confronted in space. Although designed primarily for studies of personnel reactions in conventional aircraft, it has a vast potential for the future. In the same laboratory, a room in which men can live for days or weeks at a time has been constructed on the hub of a centrifuge. This room can be rotated through a wide range of revolutions per minute, thus permitting study of the probable effects of constant rotation on the occupants of space craft or earth satellites. It is thought that such rotation would be required to provide an artificial gravity environment, but already we have discovered several bizarre effects on the occupants, resulting from this constant rotation.

Figure 4. Exterior of the human disorientation device and control panel.

The Aviation Medical Acceleration Laboratory at Johnsville, Pennsylvania, is built around the world's largest human centrifuge, which makes possible the study of take-off acceleration, re-entry deceleration, in-flight acceleration stresses including tumbling, control and performance problems, and tolerable flight path patterns in both aircraft and space vehicles. The tying in of the centrifuge with the high-performance Navy Typhoon Computer at the U.S. Naval Air Development Center has made it possible for a pilot in the gondola to fly a replica of the flight path that he would encounter in high-performance aircraft or space vehicles. This "dynamic flight simulator" combination was used by prospective pilots of the X15 experi-

Figure 5. Interior of human disorientation device, with Dr. Donald E. Stullken strapped in chair.

mental rocket aircraft as a training device, and resulted in the detection of numerous potentially fatal defects in design or structure that now have been corrected. The seven Project Mercury astronauts also are receiving an essential part of their training on this centrifuge.

Figure 6. Modified Mark IV aluminized, full-pressure omni-environmental suit selected for use by Project Mercury astronauts.

The Air Crew Equipment Laboratory at the U.S. Naval Air Material Center, Philadelphia, has developed successful immersion suits, anti-G suits, full-pressure suits, helmets, restraint apparatus,

and escape devices for better personnel protection. It is particularly gratifying that the Navy modified Mark IV, aluminized, full-pressure, omnienvironmental suit (fig. 6) designed by this laboratory has been selected as the suit which the Mercury astronauts will wear. Further, the large low-pressure chamber in this laboratory is being modified to undertake full-scale testing of the Project Mercury space capsule.

In the limited space of this brief report, it has been possible to mention only a small fraction of the activities through which progress in naval medicine has been accomplished during the decade just ended. A few selected areas of research and development were chosen for limited discussion because they illustrated technics of solving new problems and meeting new requirements of the atomic and space era and because all of them relate to the short 10 years during which the *United States Armed Forces Medical Journal* achieved its present status of distinguished maturity. For their notably successful efforts in bringing the *Journal* to this status, the editors and all their collaborators deserve a hearty "Well done."

IMMUNOLOGIC RESISTANCE IN ESKIMOS

The Eskimos and most of the Northern Woodland Indians still have a long way to go in order to acquire immunological resistance comparable to ours, which has been gradually developed over a period of centuries in more or less urbanized environments. I have observed several cases of rapidly developing caseous pneumonia immediately following nonspecific pneumonia. There were, on the other hand, a number of older persons seen with extensive fibrosis and secondary bronchiectasis, who generally felt well, had no signs of tuberculous activity and were negative for acid-fast bacilli on routine sputum examinations. After "influenza" epidemics, these older people were often found to have a severe, productive cough. On frequent sputum examinations only a few tubercle bacilli were found. Immediate hospital admission was often impossible; when they were finally admitted to hospital after weeks or months, clinical and bacteriological examination was usually negative and roentgenologically a regression of their "nonspecific-specific" peribronchiectatic infiltrations was seen. These old people apparently live in a precarious balance with their tuberculosis, keeping it under control for years or even decades if living conditions are favorable, but never having sufficient immunological strength to heal the smouldering disease completely.—Otto Schaefer: Medical Observations and Problems in the Canadian Arctic. *Canadian Medical Association Journal*, August 15, 1959.

Medicine in the Aerospace Age

MAJOR GENERAL OLIVER K. NIESS
SURGEON GENERAL, UNITED STATES AIR FORCE

EVER SINCE THE AIRPLANE first became an instrument of combat, the Air Force physician, as part of the Air Force team, has pioneered research in the vertical frontiers of aerospace. At the same time, as part of the team, he has provided continuous professional care to the military population at air bases, which, in time, have come to circle the globe. This responsibility for the welfare of our flying personnel in environments peculiar to Air Force missions distinguishes Air Force medicine from that of the other services.

Development of the United States Air Force Medical Service since its organization on 1 July 1949 has followed as a corollary to the organizational and operational development of the United States Air Force, established two years earlier. The *raison d'être* of this Service is to provide whatever type medical support may be required to carry out the Air Force mission. Its objective is to maintain the highest attainable degree of operational effectiveness on the part of the Air Force population.

Having been tailored to support the requirements of a round-the-clock operational force, the Air Force Medical Service has not followed the traditional medical pattern of military or civilian practice. Rather, it is an organic part of the force structure. The Air Force Medical Service is a component part of each major air command.

In contrast to its sister services, the Air Force Medical Service is established by military directive—not by public law, as are those of the Army and Navy. The Air Force Medical Service is, more-

over, a supporting service, rather than a separate command, department, or bureau. Nor is the surgeon general a Presidential appointee, as are the surgeons general of the other Services. A personal appointee of the Chief of Staff, he functions as a member of the Air Staff and is advisor to the Secretary of the Air Force and the Chief of Staff on all medical matters. As a staff officer, he provides continuous technical direction of the total medical program in support of the Air Force mission.

Present and former surgeons general of the Air Force met at unveiling of the portrait of Maj. Gen. Dan C. Ogle, USAF, MC, on the occasion of his retirement. Left to right: Maj. Gen. Malcolm C. Grow, USAF, MC (Ret.), first surgeon general, July-November 1949; Maj. Gen. Harry G. Armstrong, USAF, MC (Ret.), second surgeon general, December 1949 to June 1954; Maj. Gen. Ogle, third surgeon general, July 1954 to November 1958; Maj. Gen. Oliver K. Niess, USAF, MC, present surgeon general.

In contrast to civilian medical practice and procedures, the Air Force supports a different type of patient. Geared to provide short-range therapy for a basically young and healthy adult population, the primary effort of the Air Force medical mission is oriented toward pioneering research and development to overcome the environmental hazards of man in flight. It investigates and applies clinical support to preserve a continuously healthy and effective military population. It maintains, as a housekeeping function throughout the commands,

a dynamic preventive medicine program. Thus, the Air Force medical complex at air bases dispersed throughout the globe is housed in composite medical facilities rather than traditional hospitals, in order to encompass these many support functions.

Moreover, the geographic location of Air Force composite medical facilities is in contrast to that of civilian hospitals, which are normally situated in metropolitan areas. Since air bases, on the other hand, are necessarily some distance away from large cities, their medical facilities are likewise dispersed at a distance from densely populated regions. Whenever there is a major geographic relocation of command because of change in mission, the pattern of medical support quickly changes, too.

Aerospace medicine is rooted in World War I. Its development has followed a long and arduous course. Just as the single engine "Jenny" gave way to the bombers of World War II, and the latter gave way to the century series, the century series will give way to boost-glide and more sophisticated space vehicles.

Early in World War I it became apparent that the physical defects of the pilots—rather than the structural deficiencies of the aircraft—were responsible for the majority of the fatalities which occurred in connection with the war in the air. As a result, the Army Signal Corps established the Air Service Research Laboratory at Mineola, Long Island, in January 1918, for the purpose of pioneering research in aviation medicine and establishing improved flying standards for pilots.

In the decade following World War I, there was little interest in aviation medicine. At Wright Air Field, however, test pilots were running into difficulty because plane design was out of step with human engineering.

At this point Colonel (later Major General) Malcolm C. Grow, then base surgeon at Patterson Field adjoining Wright Field, conceived the idea of developing a laboratory that would reconcile human engineering with plane design. As early as 1932, he had published the first paper in America on the subject of aviation medicine. Having conceived the idea of a research laboratory that would concern itself with human engineering as a component of plane design, Colonel Grow brought Captain (later Major General) Harry G. Armstrong to develop the laboratory and its program. Colonel Grow himself became chief flight surgeon in Washington, D.C. When the Aero Medical (now Aerospace) Laboratory opened in 1934, Grow and Armstrong were named as co-founders.

Meanwhile, the Air Service Research Laboratory had changed its name to the School of Aviation Medicine and had moved to Randolph

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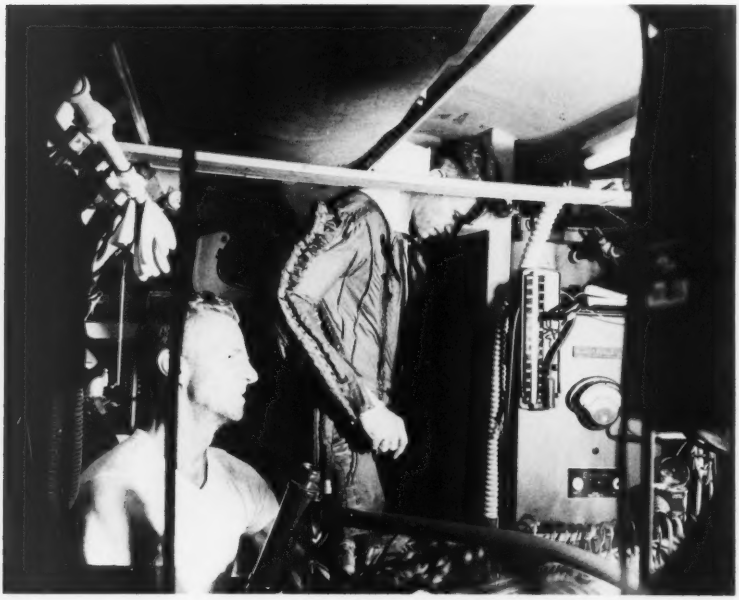
Field, Texas, without any break in its operation. Whereas the laboratory at Wright-Patterson Air Force Base was concerned with hardware, the school dealt primarily with physical standards for man in flight. This involved a threefold mission: teaching medical personnel aviation medicine; carrying out research in the problems of aviation medicine; and providing consultation services. During World War II, the program expanded; and by the end of the hostilities, the school had graduated more than 4,200 medical officers, as well as several thousand nurses and aeromedical technicians.

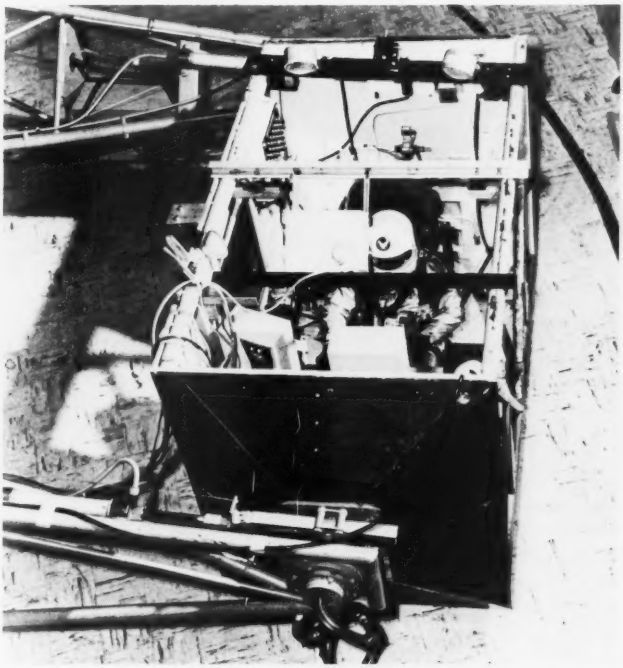


Dr. Bruno Balke (left) and Senior Master Sergeant Sam Karst, USAF, don skin-tight pressure suits for a simulated high-altitude emergency in a sealed pressure chamber, part of a 10-day experiment.

Aerospace medicine was first formalized into a systematic program on 9 February 1949, when Colonel Harry G. Armstrong, then commandant, established the first department of space medicine in the world. Headed by Dr. Hubertus Strughold, who had pioneered aeromedical research in Germany prior to joining the School of Aviation Medicine staff, this program is now in its second decade. It was here, in February 1958, that Airman Farrell made the first

simulated space flight in the cabin designed by Doctor Strughold. Since that time, the school has carried out much further study in the use of the space-cabin simulator. In October 1958, twenty Strategic Air Command pilots became subjects for a one-year experiment in space-cabin simulation. Thus, the School during the past year has been gathering significant data for an eventual detailed report on this great problem.

During 1959, under the dynamic leadership of Major General Otis O. Benson, Jr., a new physical plant for the School of Aviation Medicine was completed at Brooks Air Force Base, Texas, to which the School moved from Randolph Air Force Base. Dedication ceremonies were held on 14 November 1959.

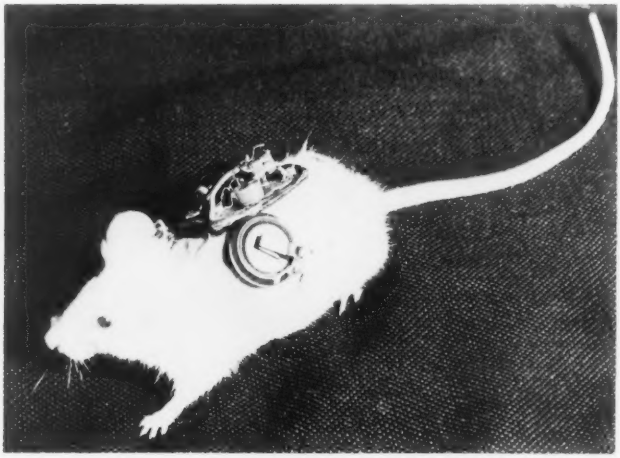


Man's ability to withstand accelerative forces is tested in the centrifuge at the Aerospace Medical Laboratory, Wright Air Development Center, Wright-Patterson Air Force Base, Ohio.

To keep pace with the emerging requirements for aerospace flight, it became increasingly apparent that the aerospace research and

teaching mission should be correlated with a balanced clinical program. As a result, on 1 October 1959 the USAF Aerospace Medical Center—first of its kind and one of which the American people can be justly proud—was established. General Benson, elevated to the position of commander of the Center, continues to serve as commandant of the School of Aviation Medicine.

Meanwhile, aerospace medical research has steadily advanced at other laboratories.



The tiny mercury battery-powered radio transmitter developed at the School of Aviation Medicine enables scientists to obtain biologic information from a small animal without restraining it.

In the field of aviation medicine, the Aerospace Laboratory at Wright-Patterson Air Force Base holds an unusual position among service laboratories, because of its dual mission. This mission involves, in addition to applied research, the actual development of end items of personal equipment. During fiscal year 1959, the Aerospace Laboratory laid much emphasis upon research and experimentation related to space flight. This work has included contributions to the design of a closed ecologic support system for manned space flight and the continued development and testing of full-pressure suits for the X–15 program.

The Air Force Missile Development Center of the Air Research and Development Command at Holloman Air Force Base, New Mexico,

contributes to the Air Force human factors program in two broad fields: space biology and biodynamics.

The Arctic Aeromedical Laboratory, in Alaska, has as its mission the investigation of problems affecting living conditions and combat efficiency of military personnel in the Arctic. The laboratory has continued to make progress in many phases of scientific research.

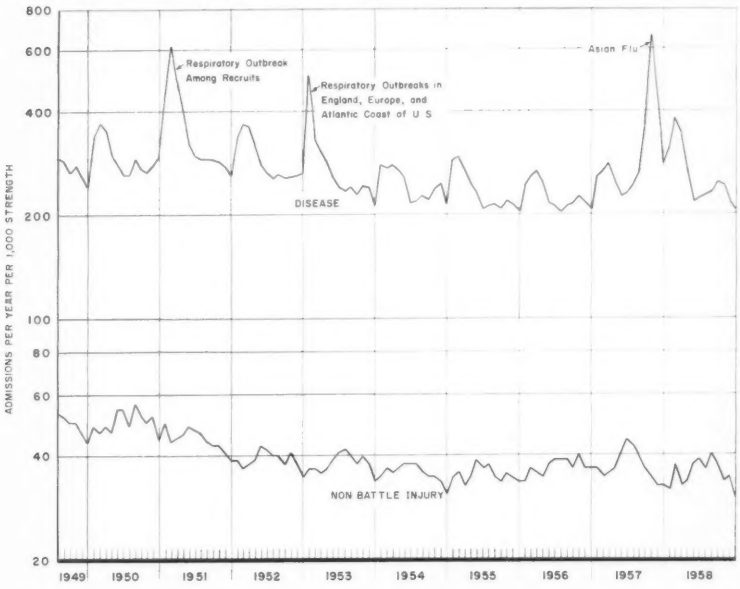
Meanwhile, within the Office of the Surgeon General, in Washington, D.C., the Nuclear Medicine Division was established within the Directorate of Professional Services in June 1959. This reorganization had become necessary in order to provide for a single, well-directed, and controlled Air Force nuclear medicine program capable of meeting the present and anticipated responsibilities of the Air Force Medical Service in the fields of nuclear medicine, special weapons defense, radiobiology, radiation health physics, and the biosciences in general.

Aerospace medicine and nuclear medicine are, however, virtually inseparable under present conditions. The development and employment of manned and unmanned nuclear weapons systems and the requirements of space travel have presented the Air Force with many radiobiologic problems in aerospace medicine. Accordingly, the School of Aviation Medicine has devoted much attention to the study of the hazards of acute and chronic effects of radiation exposure and the possibility of finding compounds to protect against or modify these effects. Solutions to such nuclear problems were sought in a combination of SAM and contract studies, in collaboration between Air Force and Atomic Energy Commission facilities, and through participation at AEC's Nevada Test Site and Eniwetok Proving Ground.

The philosophy of the United States Air Force and its predecessor agencies—the Air Service, the Air Corps, the Air Force Combat Command, and the Army Air Forces of World War II—has never varied from one basic tenet. Insofar as possible, medical care is brought to the individual at base level. The base medical facility is the cornerstone of the USAF Medical Service.

Prior to the establishment of the USAF Medical Service in 1949, the individual base provided general medical care at base level but depended upon the Army for specialty care. With the establishment of the Service, it was assumed that this arrangement would continue, and no arrangements were made for Air Force general hospitals. Less than a year later, however, the Korean conflict proved that this system was unfeasible. With the sudden expansion of force strength, Army and Navy facilities were suddenly hard pressed to meet their own requirements. The Air Force was compelled to enlarge its hospitalization capabilities.

When the Air Force Medical Service was established on 1 July 1949, the Air Force strength was 423,000. By May 1950 it had declined to 409,000. Following the outbreak of Korean hostilities, the number of persons on duty increased to a peak of 980,000 in May 1953. It dropped below 900,000 in November 1957. Throughout the period, the age-composition, the officer-airman, and the flying-status proportions have varied little. However, mission and geographic deployment have varied greatly. These variations have had a bearing on the number and nature of illnesses reported.



Admission rates by major diagnostic classification, Air Force personnel, July 1949–December 1958.

Meanwhile the number of Air Force dependents grew. The increase resulted both from the growth of the Air Force after the outbreak of the Korean conflict, and from a rise in the ratio per sponsor. Five years ago there were 413,000 married persons and 470,000 dependent children in the Air Force. Today there are 483,000 married persons and 769,300 dependent children. This growth of the Air Force family unit has, among other things, resulted in an increased number of childhood diseases to be treated. Last year, for example, we treated nearly 50,000 children. We average today more than 400,000 inpatient

admissions and our outpatient visits have catapulted to nearly 12,000,000 per year.

These figures indicate the increase in outpatient care required to support military families living at dispersed Air Force bases throughout the world.

To support this requirement, the Air Force has pioneered the Air Force Clinic, which operates like civilian clinics, such as Mayo. The Air Force Clinic at Andrews Air Force Base hospital, Washington, D.C., is an example. Here the Clinic is an integral part of the hospital with the staff of specialists, each with a private office, serving both inpatients and outpatients. This has been one of the major developments in Air Force medicine during the past 10 years.

Finally, in the area of specialty care, the Air Force Medical Service has developed a fully mature clinical capability in the relatively short span of a decade. The 1,000-bed hospital at Lackland—now part of the USAF Aerospace Medical Center—is our first teaching hospital and our largest. It is an excellent example of how the practice, teaching, and diagnostic investigation of clinical medicine combine to increase the combat effectiveness of the Air Force. All told, the Air Force has had 73 hospitals accredited by the Joint Commission on Accreditation of Hospitals. Of these, 15 are overseas.

Since its origin 10 years ago, the Air Force Medical Service has constructed more than 200 new medical and dental facilities. Today there are 11 Air Force specialty hospitals in the continental United States and one in each major overseas command, offering care in 31 medical specialties. In providing maximum medical support of the Air Force and complete clinical care of the Air Force man and his family, and in the interest of not duplicating facilities or service, we have worked closely with the other services in sharing capabilities.

The emergence of the composite medical facility has met the particular requirements of the medical service complex at isolated Air Force bases throughout the globe. The complex, for example, must house the Air Force clinic with its waiting rooms, examining rooms, private offices for the doctor—not merely a certain number of hospital beds per square foot. There must be laboratories to serve the specialties. Thus, the Air Force composite medical facility is tailored to meet the changing pattern of clinical support of the Air Force mission.

During World War II the soundness of the concept of aeromedical evacuation of the sick and wounded was demonstrated, and during the Korean conflict air evacuation was accepted as the preferable mode of transportation. The Military Air Transport Service is now responsible for carrying out worldwide evacuation service for the De-

partment of Defense. In the last decade MATS has moved approximately a half million patients in its global aeromedical evacuation system.

U.S. Air Force Hospital, Lackland Air Force Base, Texas.

The readiness of the fledgling USAF Medical Service was tested during the Korean conflict, in the course of which it developed into an organization designed to withstand the stresses of rapid mobilization. Subsequently, it has been prepared in time of crisis at Formosa and the Taiwan Straits in the Pacific, at Lebanon in the Middle East. Current mobilization plans and training are designed to fulfill the military mission in case of sudden enemy attack.

During the last decade we have worked closely with the Inspector General, USAF, in an effort to identify medical problem areas. Resolution of these problem areas is being accomplished through close integration of efforts by base surgeons, numbered Air Force surgeons, major command surgeons, and the Office of the Surgeon General.

A basic concept that the USAF Medical Service is striving daily to translate into action is the importance of interchange of medical information and planning. For example, the School of Aviation Medicine plays a vital role through its training of allied medical students. Likewise, the annual medical conferences attended by allied officers are important in translating this concept into reality, as are the

regional medical conferences symbolized by those of PACAF and USAFE.

Regularly, since 1955, intercountry medical conferences have been convened by the Air Force in the Pacific, bringing together military physicians from the United States Armed Forces and from the Armed Forces of Title III countries in the Pacific Air Forces area. In addition, many civilian physicians of prominence in these countries, including Burma and India, have attended medical conferences and participated in the exchange of information and the promotion of good will. The Air Force has gained stature and recognition from such gatherings of doctors from all countries in an atmosphere of learning and fellowship. It is through this kind of professional contact among medical people within the area of the command that progress toward the establishment of international friendship can best be made.

The Air Force has operated an extensive training program for civilian and military interns, physicians, and technicians at several United States Air Force hospitals in Japan and the Philippines.

The cumulative effect of all this is twofold. There is increased stature of the participating medical services; and there is a definite impact caused by the absorption of a portion of the medical burden by the participating allied medical services.

In December 1959, I attended, with members of my staff, the PACAF Medical Conference at Baguio in the Philippines. At this conference there were representatives from 10 allied Asian countries, as well as representatives from the three Armed Services.

We have gained much in the mutual exchange of medical information with our friends of allied nations. Not only have we improved our professional knowledge, but also I hope we have furthered understanding and mutual trust among our peoples.

The practice of medicine is universally based upon mutual trust and understanding between the doctor and his patient. This same relationship of mutual trust and understanding must also underlie world peace if it is to be enduring.

THE SYMPTOM OF OVERWEIGHT

Overweight is a symptom, like the temperature of 105° with pneumonia. It would not make sense just to give aspirin to lower fever and not treat the pneumonia. The factors behind the overweight are more important than the weight itself. It may be best with many overweight patients to avoid talking about the obesity itself and discuss the factors in personality and life situation that produce the disease.—ROBERT H. BARNES: Attitude of the Physician Toward Obesity. *Clinical Medicine*, May 1959.

The Society of Medical Consultants to the Armed Forces

MAJOR GENERAL SILAS B. HAYS, MC, USA (RET.)

FOR MORE THAN a dozen years a nationwide group of eminent civilian physicians and surgeons has been helping to solve the medical problems of the Armed Forces and seeking to forge an ever-closer link between civilian and military medicine in the interest of national defense. Little recognition has been given to their activities, but these men have played an important role in developing and maintaining the high standards of medical care now being provided by medical services of the Army, Navy, and Air Force.

The continued intense interest of these men in military medicine, their keen understanding of the many complex problems involved, and their willingness to devote time from busy private careers to help resolve them, has been both amazing and heartening to everyone in the Armed Forces medical services who has observed and benefited from their expert counsel and service. The group has no official status.

When it was formed in 1946, the group was known as The Society of Medical Consultants in World War II. Membership was restricted to civilian physicians who had served in uniform as medical consultants to the Medical Department of the United States Army during that war. The society was unique, in that it was organized simply in the hope that such a group, through the weight of its influence and experience gained in military medicine, might be of benefit to the Army Medical Department in the years following the war. Immediately after its establishment, the society volunteered its services to Major General Norman T. Kirk, then the surgeon general, to assist him in every way possible in reorganizing his department on a sound peacetime basis. "The obvious pious hope at the time of the founding," as Dr. John Minor, Washington, D.C., president of the society in 1953, stated at the annual meeting that year, "was that the great cataclysm

General Hays, former Surgeon General of the Army, is director of the blood program in the eastern area, American National Red Cross, Alexandria, Va.

we had passed through was the end of wars, at least in the lifetime of the group." Certainly, the founders of the society could not possibly have envisioned in 1946 that the years ahead would constitute one of the most critical periods in the nation's history. Neither could they foresee the extensive use that would be made of the society's services during those years, not only by the successors of General Kirk, but also by the heads of other departments and agencies of the Government.

At any rate, as the years went by and the society continued to flourish, it became obvious that what at first had been a "generous gesture" had developed into a tradition. It also became obvious that if the society was to avoid becoming a "last-man's club" because of the restrictions it had placed on membership, some action would have to be taken to perpetuate its life. Following the establishment of the Department of Defense and the outbreak of the Korea conflict, requirements for active membership were liberalized, in 1951, to include civilian physicians who had served on active duty as commissioned medical officers in any of the three military departments and who had served in a consultant or comparable capacity either during or subsequent to military service. Accordingly, the name was changed to its present title of The Society of Medical Consultants to the Armed Forces.

All active members of the society are topflight professional men. Many are prominent medical educators; the society is represented on the faculties of more than three fourths of the 84 approved medical schools in the United States. Other members are practicing physicians and surgeons in their respective communities. Still others occupy important posts in outstanding civilian hospitals or medical institutions. Many of the members, though by no means all of them, are Reserve officers in one of the three services.

Contrary to the original belief that interest would wane with the passing years and the membership shrink, the group continues to grow. Each year new members are accepted. The original roster in 1946 contained 178 names. Today the active membership numbers 372. In addition, there are 3 emeritus members (former active members who retired because of age or ill health), 27 associate members (officers in the medical services of the Regular military establishment of the United States), and 13 honorary members (distinguished officers and consultants of the armed forces of the United States' allies, who served in World War II or a subsequent conflict). Associate members are eligible for active membership upon their retirement from active duty with the military departments. Only the

active members pay annual dues. The society's membership is still predominately made up of civilian physicians who at one time or another were on active duty in the Army. Of the 372 currently active members, 328 served with the Army, 29 with the Navy, and 15 with the Air Force.

The late Dr. Elliott C. Cutler, Mosley Professor of Surgery, Harvard Medical School, the first president of the society.

Major General Norman T. Kirk, surgeon general of the Army from 1943 to 1947. The society was established in 1946.

During the 13 years since the group was formed, 29 members have died, including 3 of the founders. Among these was the society's first president, Dr. Elliott C. Cutler, Mosley Professor of Surgery, Harvard Medical School, and a brigadier general, Army of the United States, who served as chief consultant in surgery in the European Theater of Operations (ETO) in World War II. After he learned that he had an incurable disease and knew that he had only a short time to live, Dr. Cutler wrote to Secretary of the Army Kenneth C. Royall in 1947 to inquire whether he could be of any assistance to the Army Medical Service in his remaining days. Such spirit was typical not only of Dr. Cutler but also of many of the other leaders of the society who had done so much to strengthen the bonds between civilian and military medicine.

Dr. Cutler was one of the 14 original members and founders of the society who met at the Army-Navy Club in Washington on 16 February 1946, shortly before their return to civilian life, and unanimously agreed to form the organization. Of the 11 surviving charter mem-

bers, 10 are now associated with medical schools, and one is Chief Medical Director of the Veterans' Administration. They are Drs. Norman Q. Brill, Edward D. Churchill, Michael DeBakey, Francis R. Dieuaide, Perrin H. Long, William C. Menninger, William S. Middleton, Hugh J. Morgan, Maurice C. Pincoffs, Lauren H. Smith, and Lloyd J. Thompson.

Besides Dr. Cutler, the other founders who have since died were: Brigadier General Fred W. Rankin, MC, USAR, who served as chief consultant in surgery to the surgeon general, and Colonel Douglas A. Thom, MC, USAR, who acted as consultant in neuropsychiatry, Headquarters, Second Service Command.

At the organizational meeting, the founders formulated a proposed constitution, decided to hold the first annual meeting in the fall of 1946, and elected temporary officers to serve until then. The consensus was that the annual meeting should be one day, with a dinner in the evening. It was also agreed that the membership of the society should be constituted of those present at the organizational meeting and "other individuals selected from civilian internists, surgeons, neuropsychiatrists, and specialties in the subdivisions of these major fields who served temporarily in the Army of the United States during World War II and who during this period or some part of it served as professional consultants in an important command." The temporary officers were: Dr. Cutler, president; Dr. Pincoffs, vice president; and Dr. DeBakey, secretary-treasurer. In addition, four councilors were elected: Drs. Morgan, Menninger, Middleton, and Churchill. The councilors, together with the officers, comprised the society's council, which was to establish policies subject to the approval of a majority of the members of the society present at the annual meetings.

The first annual meeting took place on 18 October 1946. Despite a railroad strike and a hotel strike in Washington, D.C., about 140 attended, which President Cutler said was "a happy augury for the future success and accomplishments of the society." The meeting was held at the Walter Reed Army Medical Center, which has been the scene of all subsequent sessions, except the 13th annual meeting, conducted on 24 November 1958 at the National Naval Medical Center, Bethesda, Maryland.

The constitution formally adopted at the first annual meeting set forth the following purposes for which the society was formed:

To preserve and encourage the beneficial associations of consultants in the various fields of medical endeavor.

To assist in the development and maintenance of the highest standards of medical practice in the Army.

To disseminate and preserve the experience and knowledge of military medicine gained in World War II.

To foster an awareness of the civilian obligation to participate in the continued development of the Medical Department of the Army.

To constitute an organized group which will respond promptly and effectively at any time to the call of The Surgeon General for advice and assistance on problems of professional importance in the Army.

Except for changes in the wording from "Army" to "Armed Forces" and from The "Surgeon" General to The "Surgeons" General, the statement of the purposes of the society in the present constitution differs little from that in the original one.

Having busied themselves with organizing the society, the temporary officers announced at the first annual meeting that they wished to turn their duties over to others. Consequently, a new slate of officers was elected. Dr. Walter Bauer, Jackson Professor of Medicine, Harvard Medical School, succeeded Dr. Cutler as president. Dr. Frank B. Berry, now Assistant Secretary of Defense (Health and Medical) was elected vice president; while Dr. Brian Blades, professor of surgery, George Washington University School of Medicine, and Dr. Donald M. Pillsbury, now director of the department of dermatology, University of Pennsylvania School of Medicine, were elected secretary and treasurer, respectively. The newly elected councilors were: Drs. Middleton; Thom; R. Glen Spurling, professor of neurosurgery, University of Louisville School of Medicine, Louisville, Kentucky; and W. Barclay Parsons, professor of emergency surgery, Columbia University College of Physicians and Surgeons.

Under the provisions of the constitution, the vice president automatically succeeds to the presidency. Thus, Dr. Berry, who was one of the most active members of the society before assuming his present post, became its president at the 1948 annual meeting. Listed here, in sequence, are the former presidents:

Elliott C. Cutler, Mosley Professor of Surgery, Harvard Medical School, Boston.

Walter Bauer, Jackson Professor of Medicine, Harvard Medical School, Boston.

Frank B. Berry, Assistant Secretary of Defense (Health and Medical), Washington, D.C.

Henry M. Thomas, Jr., Associate Professor of Medicine, Johns Hopkins University School of Medicine, Baltimore.

Daniel C. Elkin, former Whitehead Professor of Surgery, Emory University School of Medicine, Atlanta, who died late in 1958.

Garfield G. Duncan, Professor of Medicine, Jefferson Medical College of Philadelphia.

Grover C. Penberthy, Professor of Clinical Surgery, Wayne State University College of Medicine, Detroit.

Richard A. Kern, Professor of Medicine, Temple University School of Medicine, Philadelphia.

John Minor, Washington, D.C.

Worth B. Daniels, Professor of Medicine, Georgetown University School of Medicine, Washington, D.C.

Joseph M. Hayman, Jr., Dean, Tufts University School of Medicine, Boston.

Donald M. Pillsbury, Director of the Department of Dermatology, University of Pennsylvania School of Medicine, Philadelphia.

George O. Eaton, Assistant Professor of Orthopedic Surgery, Johns Hopkins University School of Medicine, Baltimore.

Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical), the third president of the society.

Dr. I. Ridgeway Trimble, professor of clinical surgery, University of Maryland, the 1960 president of the society.

The 1958–59 officers were Drs. Bruce P. Webster, associate professor of medicine, Cornell University Medical College, president; I. Ridgeway Trimble, professor of clinical surgery, University of Maryland School of Medicine, and associate professor of surgery, Johns Hopkins University School of Medicine, vice president; William A. Howard, assistant clinical professor of pediatrics, George Washington University School of Medicine, secretary; and Theodore J. Abernathy, assistant professor of medicine, George Washington University School of Medicine, treasurer. Dr. Trimble is now the fifteenth president of the society.

In November of each year, members come to Washington at their own expense for the annual meeting. Despite the fact that most of them belong to various other professional societies which take additional time from their busy private careers, a surprisingly large number attend these annual meetings. The average attendance is

about 125 active members. In addition, there are numerous guests and speakers. Most of the annual meeting is devoted to the serious business for which the society was formed. There is also, however, an annual dinner and social gathering where the members participate in what Dr. Minor once described as "a much enjoyed refreshing of wartime friendship, a gathering around the fire of old memories to warm our hands and our hearts."

The program for the society's annual executive session is designed to acquaint the members with developments in military medicine and with the problems facing the Armed Forces medical services. There are usually a half dozen or more speakers. An open forum follows each address to give members the opportunity to ask questions or make comments. It has been customary from the beginning of the society for the surgeon general of the Army and selected members of his staff to present a résumé of what happened in the Army Medical Service during the year and to discuss the problems of the year ahead. In more recent years, the surgeons general of the Navy and Air Force or their representatives also have appeared regularly on the program. Dr. Berry has addressed the group annually since he became the Assistant Secretary of Defense in 1954. Among some of the other prominent speakers have been Generals Matthew B. Ridgway, Omar Bradley, Maxwell D. Taylor, Williston B. Palmer, Alfred M. Gruenther, and Anthony C. McAuliffe; Admiral Arthur W. Radford; the late Secretary of War Robert P. Patterson; and Secretaries of the Army Kenneth C. Royall, Gordon Gray, and Wilber M. Brucker.

President Dwight D. Eisenhower made an unscheduled appearance before the society at its 1957 meeting. He expressed the wish "of coming and saying thank you on behalf of the Armed Forces for your work during these past years."

The activities of the society are carried on throughout the year by its advisory board to the surgeon general of the Army and by standing committees. The advisory board is authorized to act for the society upon any questions or requests for advice submitted by the Secretary of Defense of the surgeon general of the Army. It is also authorized to act as an advisory board to the surgeon general of the Navy or Air Force upon request. This board is composed of the president of the society, the immediate past president, the vice president, the secretary, and the chairmen of the various standing advisory committees to the surgeon general of the Army. At present there are seven such committees: area (ZI) consultants, overseas consultants, personnel, information, training, psychiatry, and preventive medicine.

These committees have evolved over the years as the need arose for them. Although there have been numerous committees for specific tasks, the first two permanent standing committees came into existence into 1949, when Major General Raymond W. Bliss, then the surgeon general, requested the advisory board to conduct a survey of the consultant system in the Army Medical Service and make recommendations for improving it. To do this, the society's president, Dr. Thomas, appointed a zone of interior consultants committee, with Dr. Garfield G. Duncan as chairman, and an overseas consultants committee, headed by Dr. William S. Middleton.

Four more standing committees were added in the period 1950–1951. Their chairmen were: Drs. Donald M. Pillsbury, information; Bruce P. Webster, personnel; Norman Q. Brill, psychiatry; and Dr. John B. Youmans, now technical director of the Army Medical Research and Development Command, training. The establishment of the committee on preventive medicine late in 1951 completed the present list of committees. The first chairman of this committee was Dr. Stanhope Bayne-Jones, who at that time was president of the Joint Administrative Board of The New York Hospital-Cornell Medical Center in New York City. He was a brigadier general, AUS, during World War II, and before that was dean of the Yale University School of Medicine.

The chairmen of the standing committees are appointed by the president of the society and serve for 3 years. The area consultants committee has seven members, the chairman and one representative from each of the six army areas in the zone of interior. The other committees consisted of from three to six members.

One has only to look back over developments in the past 20 years to realize the great change that has taken place in military medicine and to comprehend the important role that the consultants' society has played in that metamorphosis. As late as 1939, military medicine was relatively isolated from civilian medicine, being a composite of men trained for a special role in addition to their training as physicians and surgeons. When, during World War II, most of the Regular Army medical officers were needed to perform the essential command and staff functions, care of the sick and wounded fell in large measure to the recently inducted civilian medical personnel. Following the war, it was necessary that members of the Regular Army Medical Corps be given refresher training before returning to professional work.

The men who had served as consultants in the medical department in World War II were fully aware of the Army's plight, and realized that they were in the best position to do something about it. They

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recognized that if the Army was going to be able to train its own personnel and to induce capable young men to enter the military medical service, it would have to offer a career that would provide full opportunities for professional work, postgraduate training, and specialization. They also knew that the Army would have to have outside help in establishing such a program and bringing into reality the new professional concept of the properly trained Army medical officer. These were the considerations which motivated the consultants to form their society and to offer their services to the surgeon general of the Army.

With the advice and assistance given by the society, primarily through its newly appointed advisory board, the medical department in 1947 established the Army residency training program, which marked an abrupt turn in the road to progress and recognition for military medicine. This was the beginning of the extensive postgraduate professional training program that exists today. The support and aid given by the society in setting up the residency training program, its advice concerning the scope and operation of the entire professional program, its assistance in procuring teaching staffs, and its periodic inspections of the teaching hospitals have been invaluable. It is in this field perhaps that the society has made its greatest contribution. The professional training program has been instrumental not only in inducing many young physicians to accept military careers, with the assurance that they could continue their medical education after entering the service, but also in greatly increasing the number of qualified and board-certified specialists in the Army.

Before the residency training program was adopted, the Regular Army Medical Corps had only a handful of specialists. Today, more than 500, or about one third of the Regular Army medical officers, are board certified, while another 500 are board eligible. The program yielded big dividends in Korea, where the death rate among the battle wounded after admission to hospitals was the lowest achieved in any war in which United States forces have participated. At the outbreak of hostilities in Korea, a large number of residents in Army hospitals were rushed to the combat zone. These vigorous, well-trained, young men contributed greatly to the quality of care of casualties.

Another contribution of inestimable value has been the work of the committees appointed by the society to review and make recommendations concerning the civilian consultant program, both in the United States and overseas, which has played an important part in improving the standards of military medical care. The consultant system, built up during World War II, was continued and expanded

after the war. Under this program, large numbers of highly qualified civilian specialists, including many members of the society, have been utilized on short tours of duty as consultants to help alleviate the shortage of Regular Army medical officers, conduct professional training, offer suggestions and advice concerning professional practice, and in general keep Army physicians abreast of the latest developments in civilian medicine. In a large measure this accounts for the fact that today most Army hospitals in the United States with more than 100 beds, as well as many of the oversea hospitals, are now fully accredited by the Joint Commission on Accreditation of Hospitals.

Since the Overseas Consultants Committee was formed following the outbreak of the Korean conflict, about 150 members of the society have visited oversea theaters to inspect medical facilities and to consult with and advise regularly assigned medical officers. Their visits not only have had a beneficial effect on the morale of these officers, but their comprehensive reports and recommendations have done much to improve the standards of medical care in the oversea theaters. Summaries of selected reports, together with comments from members of the surgeon general's staff, are circulated to members of the society by the committee on information.

The society has provided and continues to provide an ideal forum where representatives of the three medical services of the Armed Forces can speak out freely concerning their problems. Through the society's advisory board and its various committees, each surgeon general of the Army since World War II has received expert counsel and assistance regarding many of the major problems that have confronted him and members of his staff. The society also has made notable contributions to military medicine at a higher level. In August 1946, Secretary of War Patterson appointed seven members of the society to serve as his medical advisory committee. Dr. Edward D. Churchill was the chairman. This committee, which functioned until Secretary Patterson resigned his post about a year later, submitted a highly valuable report which, among other things, stressed the vital importance of making an Army medical career more attractive to young men by raising the professional standards of the Medical Corps and, to that end, developing a system of residency training.

Following passage of the National Security Act of 1947, which created the Department of Defense, nine members of the society served on one or more of the various committees and councils which contributed to the progressive development and final establishment in 1953 of the Office of Assistant Secretary of Defense (Health and

Medical). At one time, during 1951, the chairman and two of the other three who composed the Armed Forces Medical Policy Council were members of the society. These were Drs. W. Randolph Lovelace II, the chairman; I. S. Ravdin, John Rhea Barton Professor of Surgery, University of Pennsylvania School of Medicine, and a retired major general; and Alfred R. Shands, Jr., now medical director of the Alfred I. du Pont Institute of the Nemours Foundation, Wilmington, Delaware. Another member of the society, Dr. Melvin A. Casberg, was the first to serve as Assistant to the Secretary of Defense (Health and Medical), as the position was originally designated. Dr. Casberg recently resigned as vice president for medical affairs at the University of Texas to accept the directorship of the Ludhiana Christian Medical College, Ludhiana, Punjab, India.

There is every indication that the Society of Medical Consultants will play the same vital role in military medicine in the years ahead that it has since World War II. The radical changes in concepts and doctrine of war brought about by the development of nuclear weapons and the potentialities of space medicine make it imperative that the Armed Forces medical services continue to modernize and improve military medicine in order to be prepared for any eventuality. The society, composed as it is of an independent group of distinguished civilian professional men who are able and willing to help solve military medical problems, can provide the expert advice and assistance needed to accomplish this difficult task.

SOLUTION OF THE STAPHYLOCOCCIC PROBLEM

There is no hope at present that the staphylococcic problem will be solved by the discovery of a new antibiotic. We need to stress "aseptic technic." We need to avoid all means of reducing the bodily defenses whenever possible and to restore them when they have been reduced. We need more information about the mechanism of disease development following infection. In short, we need to know more about host resistance and staphylococcic immunity. Finally, in the future war against the microbes, more emphasis will be placed upon the study of ecology. That is, the total internal and external environment and its relation to disease—the factors of emotional stress and strain, changes in climate, changes in environment and food. The factors of endocrine and nitrogen balance, sanitation, vaccination and chemotherapy are all part of the conditions of a healthy life.—Chester S. Keefer: Current Concepts of Bacterial Susceptibility and Immunity. *Rocky Mountain Medical Journal*, July 1959.

The William L. Keller Lecture

Lesions of the Parathyroid, Adrenal, and Thymus Glands Amenable to Surgery

FRANK GLENN, M.D.

PHYSIOLOGIC DISTURBANCES of the glands of internal secretion account for several bizarre clinical entities. Until a few decades ago these were viewed as curiosities for which little could be done therapeutically. As our knowledge about their normal function has increased and as their products have been identified chemically, correlations between disturbed function and clinical manifestations have been established. Thus early recognition of the pathologic states they engender is now readily accomplished. In recent years 3 of these glands—the parathyroids, the adrenals and the thymus—have been the object of special study at The New York Hospital-Cornell Medical Center. An increasing proportion of the disturbances are being corrected surgically with safety after suitable preparation. It is my purpose to discuss some of the facets of this endeavor from the surgeon's viewpoint.

PARATHYROID GLANDS

In 1925 Collip and co-workers [1] reported their studies on the isolation of parathormone from the parathyroids. Five years later DuBois and his associates [2] established the diagnosis of hyperparathyroidism for the first time in this country at the Russell Sage Institute of the Cornell Medical Division of Bellevue Hospital. Charles Martel, the patient, exhibited most of the classic manifestations of hyperparathyroidism and also became an example of the difficulties that surgeons may encounter in locating a parathyroid tumor. He was operated

From the New York Hospital-Cornell Medical Center, New York, N. Y.
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upon 3 times before the parathyroid adenoma was found within the mediastinum.

Usually there are 4 parathyroid glands situated posterior to the thyroid lobes. The superior parathyroids are either near the middle and upper third, posterior to the thyroid lobe, or along the branches of the superior thyroid artery. However, their blood supply is from the inferior thyroid artery. The inferior parathyroids rest near the inferior portion of the thyroid lobe posteriorly. Their blood supply is also from the inferior thyroid. The upper parathyroids are derived embryologically from the fourth branchial pouches. The lower 2, together with the thymus, arise from the third branchial pouches. Their origin helps to explain the aberrant position in which both normal and tumorous parathyroid glands are found. The upper parathyroids are generally more constant in their position, whereas the lower ones are not infrequently associated with the thymus in the anterior mediastinum.

The normal parathyroid gland has the shape of a pea, is small, measuring about 4 x 3 x 1 mm, and weighs less than half a gram. It varies greatly in color, from mahogany brown to gray-yellow, and has an intermingling of fat. A thin but distinct capsule renders its dissection from adjacent tissue easy. In cross section its texture is homogeneous and resembles thyroid tissue, but the color is often a distinctive pink.

The parathyroid gland secretes a hormone, parathormone, which is specifically concerned with the metabolism of calcium and phosphorus. In the healthy state the blood calcium level approximates 10 mg per 100 ml and the phosphorus 3 mg per 100 ml. An increase in parathormone is followed by an elevation of the serum calcium and a decrease in the serum phosphorus. There is much calcium in the body, chiefly in the skeleton. There is also a good store of phosphorus in the bones and teeth and it is well distributed throughout the tissues in the form of organic compounds. There are several theories as to how parathormone acts. One is that the hormone decreases phosphorus reabsorption in the renal tubule, thus resulting in a decrease in the blood phosphorus and an increase in the amount excreted in the urine. The calcium and phosphorus in the blood serum are in their ionized forms. As the phosphorus is lost, calcium increases to compensate. To meet this need, calcium is derived from bone. In abnormally high calcium serum levels, there is loss into the urine. Thus there is a loss of both phosphorus and calcium from the body. Another concept, supported by experimental work in animals whose kidneys have been removed, maintains that parathormone acts directly upon the bone, liberating calcium. These

two theories together afford a reasonable explanation in that they indicate the site of action of the parathormone to be both the kidney and the bone.

Clinical material. During the past 21 years, 45 patients with primary hyperparathyroidism have been investigated and managed surgically at this hospital. Of the 45 patients, 26 were women. The age range extended from 16 to 71 years, with a peak age incidence in the sixth decade. The most commonly encountered symptoms were those related to the presence of renal calculi.[3, 4] Twenty-six patients presented primarily with urinary tract complaints. Five of these were demonstrated to have varying degrees of bone demineralization. Routine determination of calcium and phosphorus levels in patients with renal calculi accounts for the establishment of the diagnosis in a large portion of the patients we have treated and many patients known to us but treated by others. However, emphasis is placed on the importance of repeated observations of these electrolyte levels, since there have been some instances, particularly early in the course of the disease, where occasional normal or near normal values were found.

Pain, fracture, or a mandibular cyst was the principal symptom in 15 patients, 8 of whom also had kidney calcifications. There were 3 instances in which an enlarged thyroid was the presenting complaint and subsequent evaluation of vague muscular and gastrointestinal symptoms revealed the true diagnosis. The sole manifestation of hyperparathyroidism in 1 patient was recurrent severe pancreatitis. On 2 occasions the symptoms and radiologic evidences of chronic duodenal ulcer were concurrent findings. Muscular weakness was a prominent symptom in 12 patients, and was more frequently noted when severe osteoporosis was present. Polydypsia was a significant finding in 3 patients. Stigmas of the disease were evident on physical examination in only a small number of the series, and were usually skeletal deformities secondary to severe bone demineralization, such as wedging and collapse of the vertebral bodies producing a diminution in stature and a varying degree of kyphosis. Other possible findings include muscular hypotonicity with severe hyperparathyroidism, or, rarely, parathyroid adenomas large enough or so situated that they may be palpated on physical examination.

The most valuable laboratory findings include serum calcium and phosphorus levels; urinary calcium levels, and changes in these with varying calcium intakes; and the calcium tolerance test. Although elevated serum calcium levels were present in every patient, some with borderline findings had to be followed periodically for several months before the abnormality was clearly demonstrated. The

serum phosphorus levels were usually below 3 mg per 100 ml unless renal function was significantly improved. Twenty-four hour urinary calcium values were distinctly elevated on restricted calcium intakes. With increasing increments in the dietary calcium, the urinary levels rose in a proportionate fashion. Calcium tolerance tests were obtained on many of these patients, and in most instances the depression in urinary phosphorus excretion was not as great as has been reported by others.

Intravenous pyelography demonstrated the presence of bilateral renal calculi in 15 patients, unilateral calculi in 10, and nephrocalcinosis in 9. There was 1 instance in which markedly depressed function was found without any evidence of calcium salt deposition. Skeletal roentgenograms revealed moderate to severe degrees of generalized osteoporosis in 16 patients, in 6 of whom solitary or multiple cystic areas were also noted. Two others had solitary bone cysts without radiologic evidences of generalized osseous demineralization. Roentgenographic studies of the teeth demonstrated absence of the lamina dura on 4 occasions. In recent years preoperative cervical esophagrams have been obtained in order to detect any deviation by an extrinsic mass. On only 3 occasions has this technic successfully demonstrated the location of the parathyroid adenomas.

In this series, hyperparathyroidism was due to a single parathyroid adenoma in 36 patients, while double adenomas were found in 6 others. There were 2 instances of carcinoma. In one of these the tumor was widespread in the neck and there were pulmonary metastases. In the second patient with a malignant parathyroid lesion, the tumor cells invaded the adjacent thyroid tissue. Here, resection of the tumor and thyroid lobe resulted in control of the disease. We have also had one example of primary chief cell hyperplasia.[5] The adenomas have occurred with equal frequency on either side and have been somewhat more commonly encountered in the inferior glands. On 3 occasions the lesions were within the substance of the thyroid glands (fig. 1), and in 3 other cases the adenomas were located in the superior mediastinum. The adenomas ranged in size from small, firm nodules scarcely more than 0.5 cm in diameter to large lesions measuring 6 x 3 cm. Although the tumors were usually firm, some contained one or more cysts.

Unrecognized and untreated, hyperparathyroidism can be a disabling and even a fatal disease. An increased understanding of the condition since the first patient was diagnosed in the United States by DuBois[2] in 1930 enables its accurate recognition before skeletal changes appear. Elevated calcium and reduced phosphorus levels in the blood serum with calciuria are pathognomonic of hyperpara-

thyroidism. Once the diagnosis has been established it becomes the responsiblity of the surgeon to locate and remove the cause—a demanding endeavor, but also a rewarding one because so many of the changes associated with hyperparathyroidism are reversible. In fact, only those of long standing are not improved by removal of the hyperactive parathyroid tissue. Early manifestations of hyper-

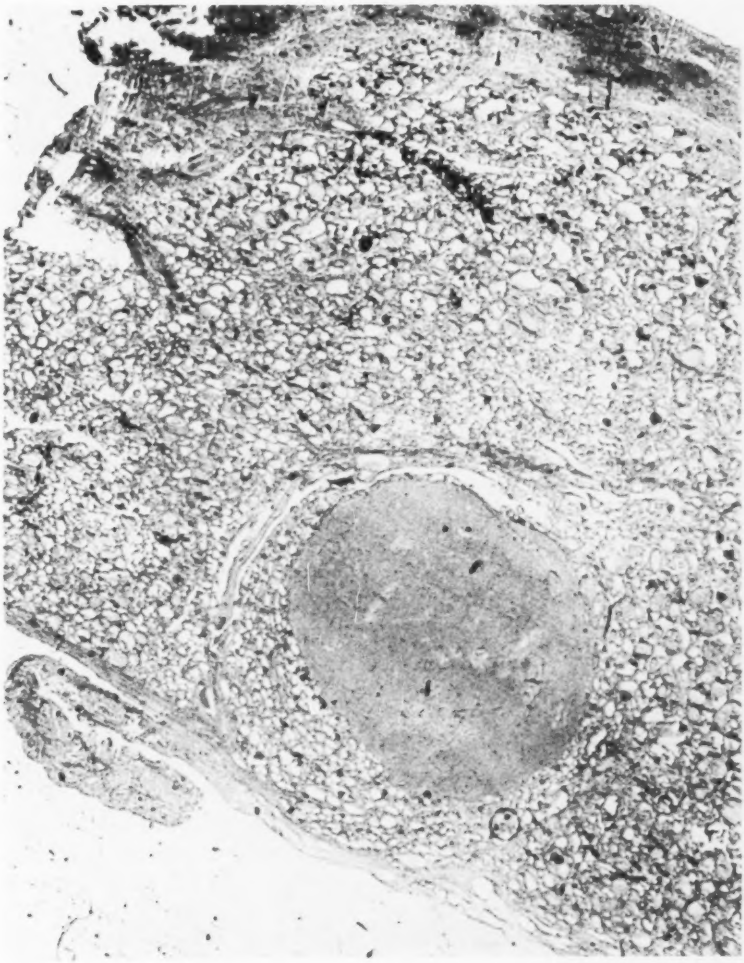

Figure 1. Adenoma of parathyroid within thyroid lobe. (x 4)

parathyroidism should be considered an indication for complete evaluation. The more thorough we are in searching for patients with hyperparathyroidism, the greater will be the number diagnosed and cured by surgical therapy.

THYMUS GLAND

The thymus gland is located in the anterior mediastinum and derived from the third and fourth branchial clefts. Although generally it is looked upon as a gland of internal secretion, its function is debatable inasmuch as no one has isolated and identified its product. Anatomically the thymus gland lacks the cellular arrangment suggestive of secretory function. Extracts from it in experimental animals appear to have some effect upon calcium metabolism and skeletal growth. That the thymus involutes and becomes smaller as puberty progresses has been held by some to be evidence that it is either related to or affected by sexual maturity.

Myasthenia Gravis, Thymoma

When the thymus becomes enlarged because of tumor growth, we refer to it as a thymoma. It has been variously estimated that up to 30 percent of patients with a thymoma have coexistent myasthenia gravis. In many instances this is greatly improved by thymectomy, but perhaps in an even greater number there is no benefit. This has stimulated many investigators over the past 25 years to seek an explanation for the unpredictable result of surgical removal of the thymus. To add further to our confusion, the removal of what appears to be a normal gland from a patient with myasthenia gravis may result in a cure or may have no evident effect.

There are several instances, recorded in recent years, in which individuals with thymomas and suffering from myasthenia gravis were also found to have other conditions of grave clinical significance. These include Cushing's syndrome with changes in the adrenals, hypoplastic anemia, and acquired agammaglobulinemia. At present, however, interest in the thymus centers about patients with myasthenia gravis, thymomas, or both.

Myasthenia gravis is a chronic disease characterized by variable generalized weakness and rapid fatigue following the use of voluntary muscles. Muscles with cranial innervation are most often involved. Thus, facial muscle palsy, difficulty in swallowing, and impairment of the respiratory muscles are causes for suspicion of its presence. Spontaneous remissions and exacerbations are a perplexing and prominent feature of the disease. The unpredictability of its course in any one

patient or in any phase leads to apprehension upon the part of those who have had experience in its management, because comparable patients may exhibit either a complete remission or a fulminating and fatal course.

Many clinical data [6] have been accumulated in recent years on this malady, which may begin at any age, but appears earlier and more frequently in females. The average age for occurrence in women is 28 years, and in men 43 years. Seldom does it begin in women over 55. The ratio of women to men is 3:2. There is no evidence that the disease is familial. Children whose parents did not have the disease have been observed to have it congenitally. However, 25 instances of transient weakness in the newborn of myasthenic mothers have been reported.

Remissions are frequent and vary from slight to complete disappearance of the clinical manifestations of the disease.[7] They have lasted for as long as 29 years, but usually are a matter of months or a few years. Pregnancy seems to favor remissions, and most patients tolerate the disease better during the period of gestation. However, exacerbations are frequent following delivery. Before the utilization of physostigmine by Walker in 1934,[8] the average duration of life from initial symptoms until death was 4½ years, some patients living only a few weeks, others surviving for several decades. Physostigmine and similar drugs have improved the outlook. Not only have they extended life, but they often reduce the intensity of the manifestations, hasten and prolong remissions, and enable individuals to pursue their regular occupations.

The enthusiasm that followed the successful relief of symptoms of myasthenia gravis after the revival of thymectomy by Blalock and his associates in 1936 [9] has not been well sustained. However, the removal of a normal-appearing thymus or of a thymoma has resulted in improvement with sufficient frequency to render the consideration of surgical therapy appropriate in all patients with myasthenia gravis. Young females with myasthenia gravis of short duration and without thymic tumor stand out as the most likely to be benefited by thymectomy. However, Eaton and Clagett [10] in a study of 214 patients (72 surgical cases and 142 controls) concluded that the percentage of patients with complete remission was approximately equal whether treated surgically or medically, but that the percentage of patients in the surgical group who were considerably and moderately improved was twice as high as that in the control group.

Infection often appears to be the precipitating factor in myasthenia crisis. An upper respiratory infection may be followed by an exacerbation of symptoms that terminate fatally, with death from pneu-

monia and inability to breathe. Microscopic changes in the cardiac muscle have been described and are suggested as a possible cause of death in myasthenia gravis. The pathologic physiology of the disease is centered in the neuromuscular junction. Grob and Harvey [11] have demonstrated that the prolonged depression of induced potentials after stimulation is due to a failure of choline to be released from acetylcholine by hydrolysis in the normal manner.

Clinical material. Over the past 10 years we have operated upon the thymus in 23 patients, 19 of whom had thymomas. Eleven thymomas were considered benign and could be removed; 8 were malignant and were not totally extirpated. Four other patients with myasthenia gravis and without evidence of any enlargement of the thymus were subjected to thymectomy. All 4 were female, ranging in age from 11 to 24, and the thymus in each instance was within normal limits on both gross and microscopic examination. Three of the 4 improved following thymectomy, although 2 patients still require small doses of cholinergic drugs some 3 years after operation.

There have now been reported a considerable number of patients who have been operated upon for myasthenia gravis. A review of this experience indicates that the results are unpredictable. For the country as a whole, the mortality rate is estimated at slightly more than 10 percent. Approximately 30 percent of patients who have had the thymus removed have been improved; 50 to 60 percent of patients have not been improved. Many patients are subject to spontaneous remission of the disease, and this should always be kept in mind in evaluating any therapy. Indeed, the physostigmine-like drugs have been useful in the management both of patients who have had surgery and of those who have not.

Although we have not observed thymic tumors very often in patients with myasthenia gravis, others interested in this endeavor have reported an incidence as high as 25 percent. Patients with thymomas have an incidence of myasthenia gravis of perhaps 15 to 30 percent. That the removal of a tumor may result in an acute and possibly fatal myasthenic crisis, as recently reported by Fisher and Child [12] and others, should be kept in mind in the consideration of surgery for this group.

ADRENAL GLANDS

The adrenal gland is made up of two distinct parts, the medulla and the cortex. These portions are readily differentiated as to structure both grossly and microscopically. Embryologically the

medulla is derived from the sympathetic ganglia and produces epinephrine. The cortex, like the kidney, originates from the mesothelium, and produces a number of hormones that affect growth, metabolism, and sex development. Hyperactivity of either portion may give rise to a spectacular clinical manifestation. Neoplastic hyperplasia of the adrenal medulla takes the form of circumscribed tumor formation. Because this tissue has a great affinity for chromium salts in staining, the tumors have been labeled chromaffin tumors. The term pheochromocytoma is now used to indicate a tumor of the adrenal medulla causing paroxysmal hypertension and other manifestations of an excess of pressor substance in the blood stream. The cortical portion of the adrenal may be the site of hyperplasia or adenoma formation, either of which can result in hyperfunction that produces a complicated pattern of clinical changes first described by Harvey Cushing and attributed to the pituitary.[13] In recent decades it has been demonstrated that the syndrome to which Cushing called attention is due primarily to hyperfunction of the adrenal cortex.

Medullary Hyperplasia: Pheochromocytoma

In 1929 Pincoffs[14] diagnosed the first pheochromocytoma to be successfully removed surgically with relief of symptoms. Since then more than 200 cases have been reported.[15, 16] The presenting symptom is hypertension, which may be constant or paroxysmal. In seeking a cause for the hypertension a tumor is discovered. Occasionally a pheochromocytoma has been diagnosed in patients who, while being examined for some unrelated condition or during the administration of anesthesia or during operation, have had a rise of blood pressure. The elevation of blood pressure may be maintained for considerable time, but usually fluctuates and is followed by an alarming degree of hypotension. An increase in the blood pressure produced by the palpation or manipulation of a tumor in the suprarenal area is pathognomonic of pheochromocytoma. When hypertension, sustained or paroxysmal, is associated with neurofibromatosis, the diagnosis of pheochromocytoma should be entertained.

We have observed 12 patients with adrenal medullary tumors. One of these had bilateral malignant adrenal tumors. In 2 patients postmortem examination demonstrated pheochromocytoma not diagnosed or suspected during life. The remaining patients had benign tumors and remained well following operation. Seven patients were female and 5 were male. The oldest was 58 and the youngest 14. Pheochromocytomas have been found in patients of all ages, from infancy to over 70.

Some of the symptoms of pheochromocytoma are also observed in conditions such as hypertension, hypertensive heart disease, hyperthyroidism, islet cell tumors of the pancreas, and circulatory instability, as well as in pheochromocytoma. These include palpitation, excess sweating, tremulousness, blanching and flushing, pulsating headache, and precordial and abdominal pain. If several of these are present the possibility of a pheochromocytoma must be considered. If only one of these symptoms is present and can be precipitated by some controllable stimulus, then there is a reasonable probability that a pheochromocytoma is present. Although the appearance of symptoms may not be related to any particular incident, it is not unusual for them to be initiated by emotional or physical exertion and more rarely by postural changes or by actual palpation or manipulation of the tumor. There is such a wide variation in the number and combination of symptoms as well as in the degree of intensity with which they appear that a complete and typical clinical picture is unlikely.

The classic attack consists of a precipitous elevation of blood pressure accompanied by pallor, tachycardia, precordial and epigastric pain, and varying degrees of anxiety. Blood pressures may range to 300+/140+ mm Hg. It has been demonstrated that during an attack there is hyperglycemia and increased content of epinephrine and norepinephrine in the blood. Ocular fundus changes result from hypertension and are dependent upon its degree and duration. They range from venous dilatation and arterial spasm to papilledema with exudates and scarring.

Cardiac enlargement tends to parallel the duration and degree of hypertension. Although we observed it in only 3 patients, it should be anticipated in all those with long-standing symptoms. In addition, neurofibromatosis was present in 3 of the 12 cases in our series and probably occurs in over one third of all patients with pheochromocytoma.

Roentgenographic evidence of tumor in the suprarenal area was present in 5 of the 10 patients treated surgically. Plain roentgenograms, intravenous pyelograms, presacral gas insufflation studies, and, more recently, tomography afford additional aids in attempting to demonstrate the presence and location of these tumors.

As a result of large amounts of epinephrine produced by the pheochromocytoma, other glands of internal secretion such as the thyroid and pancreas may be affected. The thyroid may be rendered hyperactive, causing symptoms of thyrotoxicosis including exophthalmos. Diabetes or a diabetic tendency as indicated by glycosuria, or by hyperglycemia as determined by the glucose tolerance test, is present in

over half the patients. This is associated with a high epinephrine blood content. Blood sugar levels vary. The hyperglycemia present following severe attacks is associated with exhaustion and is an indication of the depletion of the liver glycogen.

Figure 2. Cross section of well-encapsulated adrenal pheochromocytoma, weighing 249.5 grams. The tissue is relatively homogeneous.

Diagnostic tests. Although numerous tests have been evolved, including the use of blocking agents such as Regitine (phentolamine) methanesulfonate, the most dependable information has been obtained by the measurement of increased catechols in the urine. Two hormones are known to be elaborated by the adrenal medulla and by the chromaffin tissue of these tumors—epinephrine, predominating in the normal gland, and norepinephrine, predominating in tumors both actually and proportionately. These substances, which are poured into the blood stream in large concentrations, are capable of producing many changes in the vascular system. They are partially eliminated by the kidney through the urine. In our experience, an elevation of the catecholamines, as determined by the method developed by Goldenberg and associates,[17] to a range of 200 to 700 units in the urine has been observed only in patients with a pheochromocytoma. We know of no false-positive tests reported by others.

Pathology. Chromaffin and argentaffin cell tumors are derived from the pigmented cells of paraganglionic tissue occurring in the adrenals, the carotid bodies, the nervous system, and the intestinal tract. Pheochromocytomas, chromaffin cell tumors arising from the medullary portion of the adrenal or from misplaced adrenal tissue, have been found in the thorax and abdomen, along the ureter, and at the uretero-vesical junction,[18, 19] as well as in the normal retroperitoneal location of the adrenals. In size they vary greatly, ranging in our series from 6 to 605 grams. Usually they are well encapsulated, of semicystic consistency, and extremely vascular (fig. 2). They are single in about 90 percent, and multiple in 10 percent of the cases. Less than 15 percent are malignant. On microscopic examination (fig. 3) the chromaffin cells are large, with abundant finely granular cytoplasm which takes on a striking red-orange color when stained with chromium salts.

Surgical treatment. The patient with a pheochromocytoma may be looked upon as one with a great reserve of pressor material that is overflowing into the circulation. Many stimuli will increase this overflow. Anticipation of the operation, the induction of anesthesia, and manipulation of the tumor as it is approached surgically, for example, may cause large quantities of medullary hormones to be poured into the blood stream from the pheochromocytoma. The sudden deprivation of these by interrupting the blood supply of the tumor during operation usually results in hypotension and vascular collapse that may be followed by death if not corrected immediately. Anticipation of these possible events and preparation to meet them as they arise are mandatory for the successful removal of these tumors. Rest, quiet, an adequate nutritional intake, and the use of Regitine

in 5 mg doses intramuscularly when indicated are the most important items in preparing the patient for operation.

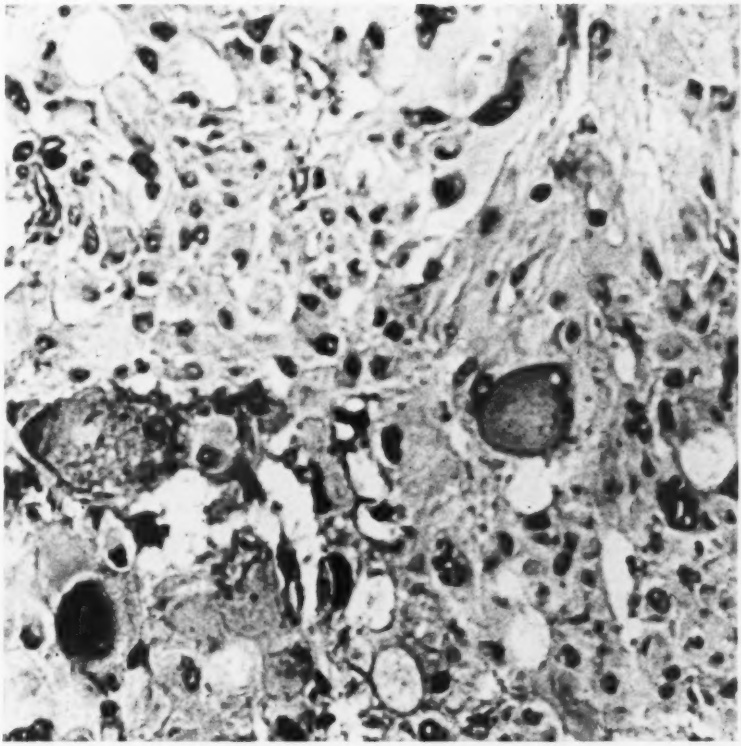

Figure 3. Pheochromocytoma; same specimen as in figure 2. On microscopic examination the chromaffin cells are large, irregular, polyhedral, with a granular staining, often vacuolated cytoplasm. (x 110)

Certain details in the surgical removal of pheochromocytomas should be emphasized. During the induction of anesthesia with intravenous thiopental sodium (50–75 mg), care must be taken to prevent a depressor response which may set off a hypertensive paroxysm. Ether, administered cautiously by the closed endotracheal technic, is used for maintenance anesthesia. In addition, if the blood pressure rise is greater than 20 to 30 mm Hg during operative manipulation, Regitine is given intravenously in 5 mg doses. Its use is not routine but only on indication; for example, if, during exposure of the tumor,

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marked increases in blood pressure and pulse rate occur. Following removal of the tumor, a previously established norepinephrine drip is regulated to maintain the blood pressure within the normal range. Norepinephrine is given in measured doses of micrograms per ml. The drip is gradually decreased as the individual adjusts to the postoperative state. If the tumor removed is a large one and if the episodes of hypertension have been severe and frequent, the amount of norepinephrine needed will probably be greater than if the clinical manifestations have been minimal. If much is required, the concentration should be increased to avoid excess fluid administration.

In surgical extirpation of pheochromocytoma, it should be anticipated that the curtailment of material being poured into the system from the tumor will, in all probability, result in vasomotor collapse, unless adequate amounts of pressor substance are administered. The quantity to be used in a given patient cannot be calculated, but rather the agent should be administered in amounts sufficient to obtain a therapeutic effect, namely, a reasonable blood pressure. Precision control of the blood pressure with norepinephrine after removal of a pheochromocytoma marks a distinct advance in the surgical management of these tumors. Further difficulties may be encountered as the patient's output of adrenalin gradually returns to a more normal quantity. A state of vasodilatation, with fall in hematocrit and red count, may ensue. In such patients addition of whole blood during the immediate postoperative course is indicated even though hemorrhage has not occurred.

Pressor substance may be used in amounts required to maintain a satisfactory blood pressure level and for as long a period as indicated without ill effect. In withdrawing such substances, it should be remembered that vasodilatation usually follows. This may require blood to provide the needed total circulating blood volume. We have observed one patient who, upon withdrawal of the pressor substance, was given 1,500 ml of blood to fill the increased vascular bed. Twelve hours later as the vasodilatation that followed the vasoconstriction became less and the vascular bed approached the normal, pulmonary edema developed but was readily relieved by a phlebotomy of 750 ml.

Cortical Hyperplasia or Adenoma: Cushing's Syndrome

In 1932 Harvey Cushing [13] described a clinical syndrome characterized by wasting of muscles and fatigue, centripetal obesity, facial plethora, hirsutism, hypertension, amenorrhea or impotence, acne, purplish skin striations, osteoporosis, diabetes, and polycythemia. He attributed this complex to basophilic tumor of the pituitary. Over the intervening years, it has been demonstrated that the syndrome

that now bears Cushing's name is consistently correlated with changes in the adrenal cortex,[20] and only infrequently is there a coexistent basophilic adenoma. In addition there are leukocytosis, lymphopenia, and decrease in the circulating eosinophils in these patients, who are almost invariably in hypochloremic alkalosis and have elevated plasma and urinary 17-hydroxycorticoid levels. These manifestations of adrenocortical lesions can be corrected by surgical removal; when this requires bilateral total adrenalectomy, substitution therapy is readily effectual in sustaining the patient.

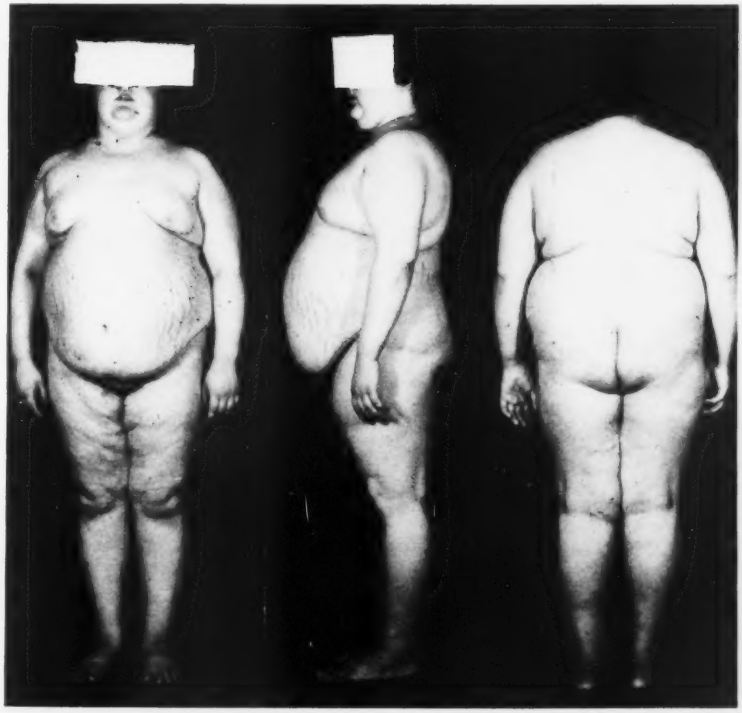

Figure 4. Patient with advanced Cushing's disease, exhibiting truncal obesity of centripetal distribution, facial plethora, purple striae, and hirsutism.

The general appearance of these patients is distinctive (fig. 4) and lends itself to ready recognition by those familiar with the disease.[21] Not infrequently, because of muscle wasting and the peculiar distribution of fat in the supraclavicular and cervical dorsal areas, the patient

appears to have become obese, but has no actual weight gain. Accompanying this is the moon facies, with facial and body hirsutism. Scalp hair tends to pull out easily and the temporal hair level recedes. Many but not all patients have an atrophic skin, facial plethora, acne, and increased bruisability, together with purple striae.

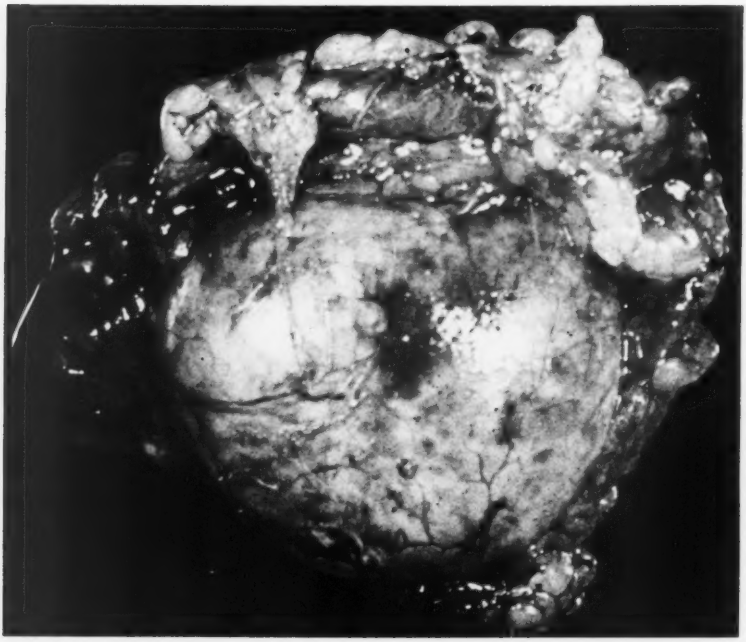

Figure 5. Cortical adenoma of adrenal gland, displacing surrounding atrophic tissue.

Concurrent with the development of the bizarre physical and physiologic changes are psychiatric disturbances in well over 50 percent of instances. Many persons have been placed in institutions for the mentally ill because of failure to recognize the manifestations of this syndrome. There are many gradations of this disease; it may be so mild that there is little disability, and again, in its most advanced stage, there is complete incapacitation and death. Particularly in youth, a mild form of the disease may appear and subside entirely without any form of therapy. For these reasons patients suspected of having Cushing's syndrome should have meticulous evaluation and a reasonable period of observation before being treated surgically.[22]

Clinical material. Over a 25-year-period, 36 patients have been treated surgically for Cushing's syndrome at The New York Hospital-Cornell Medical Center. All but 3 were female, and they ranged in age from 9 to 52 years. Muscular weakness and fatigue were the presenting complaints in over 80 percent. Partial to complete amenorrhea was present in all women. Moon facies, hirsutism, and facial plethora were present in about three fourths of the group. Hypertension of 150/90 mm Hg or greater was present in well over

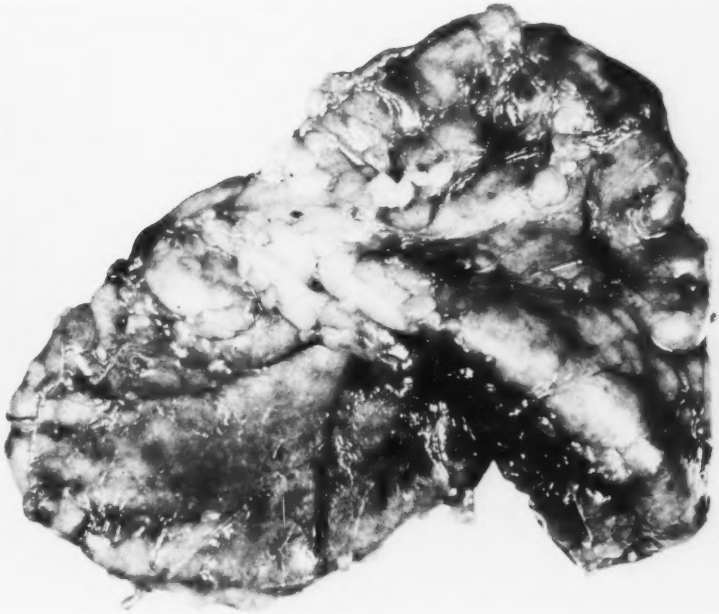

Figure 6. Nodules of hyperplastic tissue are evident over the entire surface of an enlarged adrenal gland removed from a patient with Cushing's syndrome.

half, whereas truncal obesity, acne, psychiatric disturbances, increased bruisability, and purple striations were slightly less frequent.

The suspected diagnosis is confirmed and the degree of the disease determined largely by the laboratory findings. The most dependable of these has been an elevation of the 17-hydroxycorticoids, which are rarely normal. A diabetic curve in the glucose tolerance test and eosinopenia are also commonly present. Less frequent but associated

in well over half our series were leukocytosis, increased insulin resistance, and elevated 17-ketosteroids. Lymphopenia, osteoporosis, alkalosis, and polycythemia were demonstrated in one third to one half of the patients.

Surgical treatment. There has been no medical therapy for the control of Cushing's syndrome, although an occasional case successfully treated by irradiation has been reported. Because of the unpredictability of the results from irradiation and the dramatic changes following surgery, the former is rarely employed at present. We have treated 10 patients by unilateral adrenalectomy, removing an adenoma (fig. 5) or a hyperplastic gland (fig. 6). In 23, both adrenals have been removed. There have been no deaths. Substitution therapy is essential following bilateral adrenalectomy. Immediately after operation the requirements vary from patient to patient, but once stabilized, they are met by the oral ingestion of 0.125 to 0.25 mg of 9-alpha fluorohydrocortisone each day.

Recovery begins soon after operation and is progressive. Following the early return of the laboratory findings to normal (with substitution therapy when bilateral adrenalectomy has been done), there is a gradual diminution of the physical changes. Truncal obesity disappears first, correction of osteoporosis occurring only after many months.

Unilateral adrenalectomy is, in our opinion, adequate only when the disease is due to a unilateral adenoma or carcinoma. For all other cases, bilateral adrenalectomy is recommended. This therapy places a long-lasting burden upon the patient and a heavy responsibility upon the physician, but the irreversible changes that occur in uncontrolled Cushing's syndrome far outweigh the risk and inconvenience of substitution therapy.

CONCLUSION

Hyperparathyroidism may cause a wide range of symptoms and disability, resulting in shortening of life. The common manifestations of the disease are becoming more frequently recognized and confirmation of the diagnosis by precision methods have increased during the recent past. The surgical removal of adenomas and hyperplastic parathyroids has resulted in a high rate of cure.

The thymus is poorly understood, as to both its normal function and the abnormal conditions with which it is commonly associated. Because the removal of either an apparently normal thymus or a thymoma has been followed by characteristic relief in some patients with myasthenia gravis, and by no evident effect in others, surgical

therapy remains empiric and hence unsatisfactory because of its unpredictability. Basic research is greatly needed in this group of patients.

The medullary portion of the adrenal may be the origin of tumors producing a pressor substance. These are known as pheochromocytomas and are associated with paroxysmal hypertension and vasomotor symptoms. The diagnosis can be unequivocally established and cure obtained by surgical removal of the chromaffin tumor.

Hyperactive adrenocortical tissue developing as an adenoma or as diffuse hyperplasia results in a bizarre and complex clinical entity best known as Cushing's syndrome. Spontaneous recovery in the mild form is not unusual; however, severe disability is great and death may result. Accurate diagnosis requires elaborate laboratory determinations as well as careful and sometimes prolonged clinical observation. Cure is attained by removal of all hyperfunctioning cortical tissue. This may require bilateral adrenalectomy followed by replacement therapy.

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DECREASE IN FATAL ACCIDENTS IN 1958

About 91,000 accidental deaths occurred in the United States during 1958, a reduction of around 4,000 from the toll in 1957 and the smallest number for any year since 1954. The accident death rate in 1958, estimated to be 53 per 100,000 population, established a new low record, decreasing from 56 per 100,000 in 1957. The more favorable record for the year just ended reflects in part the reduction in motor vehicle fatalities. In 1958, for the second year in a row, the number of deaths from motor vehicle accidents decreased by about 1,000, to a total of approximately 37,000. It appears likely from data available at this time that the death rate per 100 million vehicle miles reached a new low level. Nevertheless, motor vehicle accidents in 1958, as in prior years, accounted for more than two fifths of all deaths from accidents.—FATAL ACCIDENTS DECREASE IN 1958. Metropolitan Life Insurance Company: *Statistical Bulletin:* December 1958.

The James Stevens Simmons Lecture

Nutrition in National Defense and World Peace

JOHN B. YOUMANS, M.D.

THERE IS, perhaps, no better field for the principles and practice of preventive medicine than nutrition, yet the importance of nutrition was not easily established in the field of medicine. When I joined General Simmons in the Division of Nutrition during World War II, I was almost totally ignorant of the complex operation of military medicine. I was not, and am not, a public health or preventive medicine specialist. It was to General Simmons' credit that he recognized the importance of nutrition in preventive and curative medicine and in military medicine, fostering, supporting, and developing this discipline in a way which made it an important phase of both military and civilian medical practice. Because of his keen foresight and understanding, he may be considered partly responsible for some of the developments I am going to discuss.

Food, or in terms of life, nutrition, is the second greatest material need of man. The various aspects of nutrition affect nearly every aspect of society. It is and has been a tool of government, of politics, of war, and of conquest. It has affected exploration, discovery, and colonization, and the fate of populations, of countries, and of civilizations. In modern life, nutrition involves agriculture, transportation, industry, and trade, and through these the socioeconomic, scientific, and cultural aspects of our society. With the conquest of infections, undernutrition or malnutrition becomes, perhaps, the largest health problem of the world today.

This statement calls for a definition of undernutrition. It has been stated that one half or one third (figures vary) of the people of the world are undernourished, or hungry, or starving, but such statements are usually not based on a precise definition of undernutrition,

From U.S. Army Medical Research and Development Command, Washington, D.C. Presented 15 January 1959 at Walter Reed Army Medical Center, Washington, D.C.

and except for the number of individuals involved, no quantitative criteria are given. From some statements it might be assumed that starvation is of such a degree that useful work or even maintenance of life is impossible. Although this does occur to some degree, in some localities ,at some times, it is obviously not true, continually, of large segments of population. Useful work *is* done. The question is how much more might be done if "better" nutrition were provided. It is my purpose to demonstrate one way in which the enormous socioeconomic and sociopolitical importance of nutrition can be utilized in securing harmony, good will, and peace among the peoples and countries of the world. Food and nutrition have been a tool of war. They can also be a tool for peace.

To illustrate, I would like to describe some of the activities of the Interdepartmental Committee on Nutrition for National Defense (ICNND), an interdepartmental agency formed to deal with nutrition problems of technical, military, and economic importance in foreign countries in which the United States has a special interest. Our government has recognized the importance of food and nutrition as an integral and important part of the Mutual Defense Assistance Program of Technical, Military, and Economic Aid, and impetus for the organization of the committee was provided by a nutritional survey of the Korean army, and by our efforts to assist the Chinese Nationalists in Formosa in 1953–54. These activities indicated the need for program coordination. An ad hoc committee on nutrition was organized at the National Institutes of Health in July 1954, under Department of Defense sponsorship, with representatives of the departments and agencies having an interest in, and operating responsibilities for, the Mutual Defense Assistance Program. In 1955 the committee was formally established when a memorandum of agreement was signed by the Secretaries and heads of the departments of Defense, Army, Navy, and Air Force; State; Health, Education and Welfare; Agriculture; and the International Cooperation Administration (ICA), to which was later added the Atomic Energy Commission. The first executive director was the late Harold R. Sanstead, who served until his death in 1955, and who was a potent force in establishing the committee and directing its early activities. The committee has a secretariat consisting of an executive director, Dr. Arnold Schaefer, a nutritionist, a clinician, and an agricultural economist. A panel of about 20 consultants in the fields of nutrition, medicine, biochemistry, food technology, and agriculture serve as technical advisors.

The purpose and function of the committee is to deal with nutritional problems of technical, military, and economic importance to these foreign countries. It conducts nutrition surveys, primarily of

the armed forces but also of civilians, in foreign countries eligible under the mutual aid program, and reviews nutrition projects being conducted in areas where the United States is giving assistance. The committee also acts as a central clearing house for information on food and nutrition, evaluates problems of food procurement and feeding, and prepares reports and recommendations for the agencies it serves.

NUTRITION SURVEYS IN FOREIGN COUNTRIES

I would like to discuss particularly the surveys of nutrition which the committee has conducted and plans to conduct in foreign countries. Such surveys have been made in Iran, Pakistan, the Philippines, Korea, Libya, Turkey, Spain, and Ethiopia. In addition, a survey has been made of our National Guard and of the natives in Alaska. Surveys have also been planned for Peru, and Ecuador. Other countries are eligible for these surveys, and negotiations with some are in progress.

Surveys are made at the request of the governments concerned and, for reasons I shall discuss later, are primarily designed for their armed forces. However, civilians can be and have been included. The objective of a survey is to evaluate the nutrition of the population and potentials and capabilities for improvement, if such is indicated; to train personnel of the host country in all phases of nutrition, particularly in technics of clinical, biochemical, and dietary assessment and in food production and processing; to provide essential laboratory equipment and supplies for establishing permanent nutrition laboratories and institutes; to identify specific nutritional problems and make recommendations for their solution by the host country; and to advance the science of nutrition and nutritional health practices.

When a survey is requested and approved, a team is organized by the committee, usually composed of 1 or 2 clinicians, 2 or 3 biochemists, 2 food and dietary survey experts, usually former U.S. Army nutrition officers, a food technologist, and an agricultural economist. Recently, there has been a tendency to enlarge the team by the addition of a clinician to study general disease and medical care, and a sanitary engineer. It is planned to include a pathologist, a dermatologist, and an ophthalmologist on some of the surveys, both to improve the survey and to increase our knowledge of nutrition and of nutrition survey technics.

The survey provides an opportunity for educating and training personnel of the host country. The country is asked to furnish counterpart personnel in the various specialties, who are given an opportunity for

education and training in various aspects of nutrition and survey technics. The host country also furnishes laboratory space and certain logistic support.

One survey objective is the establishment or strengthening of a permanent program of nutrition, to include laboratory facilities, a clinical program, food technology, an agricultural program, and possibly the establishment of an institute of nutrition. The administrative location of such an organization in the government depends on local conditions, but it is intended that such an organization serve both civilian and military needs whenever possible.

Procedures selected by the committee are used by survey teams to insure uniformity and reliable comparison. Sampling, an important aspect of the survey, is planned with the help of a statistician experienced in such surveys. The actual procedure consists of a physical examination, laboratory tests of blood and urine, a determination of food intake, a study of food preparation, and chemical analysis of food samples. Over-all food production, processing, storage and transportation, and potentials are surveyed by the food technologist and agricultural economist. Additional laboratory tests and examinations may be added for special reasons. For example, in one country electrocardiograms were taken. In another, a study was made of blood cholesterol. A study of parasite infestation is commonly done.

Results of the surveys can be considered from two aspects, the actual state of nutrition as determined by the assessment itself, and related results, some of which are intangible. One interesting aspect of these surveys is the general similarity of the findings. Although individual differences are found in the various countries, many similarities exist in both military and civilian populations.

In most countries, the military population has been found to be in reasonably good nutritional health, particularly in relation to calories and protein, as reflected in body weight (fig. 1) and musculature. Mild to minimal vitamin deficiencies were observed, again tending to be of much the same kind in all countries, the most common being vitamin A, vitamin C and riboflavin deficiencies. Advanced nutritional deficiency diseases such as beriberi, scurvy, and pellagra have been rare. Because most disease was mild, close correlation between clinical, laboratory, and dietary findings was often lacking. This should not be considered as reflecting seriously on the correctness or value of the assessment, although it does emphasize the need for research on physical and biochemical evidence of nutritional deficiency, and for development of new diagnostic signs and tests. It should not be forgotten that in mass surveys the same close correlations cannot be expected as when dealing with individual subjects, and the results

with populations, within the limits of error of the method, are dependable and significant.

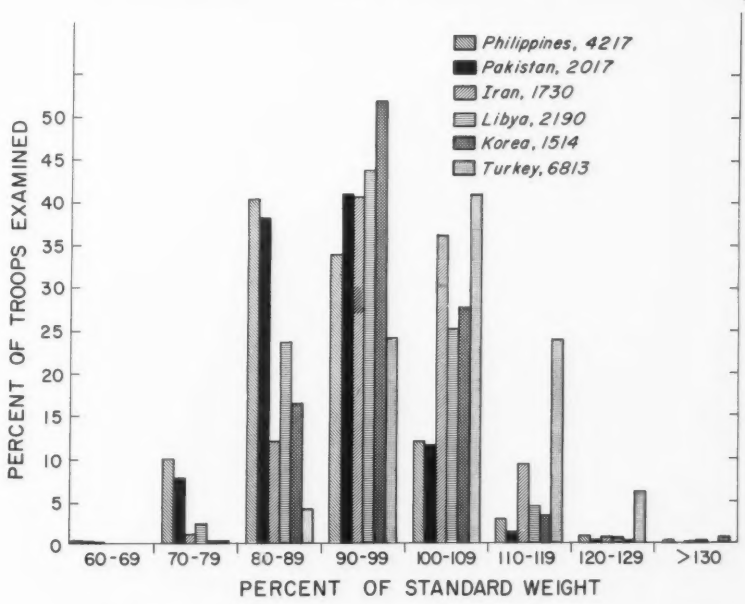

Figure 1. Body weight of troops examined in 6 countries.

Although fewer surveys of the civilian populations have been made, and fewer subjects studied, the state of nutrition of these populations is uniformly poorer than among the military. In countries in which studies of civilians were incomplete or not made at all, but whose armed forces are constituted on a draft and limited service basis, useful and valuable information on nutrition of male civilians of army age has been provided by examination of recruits. Frequently, these recruits reflected a somewhat poorer nutritional state than that of the personnel longer in service and, at least in Korea, exhibited a considerable degree of nutritional deficiency.

Individual differences in nutritional state of military personnel were found to depend on such factors as length of service, nature of service, geographic location of units, ethnic groupings, season of the year, and similar influences. Foreign armies often lack regular, uniform, and complete systems of rationing and feeding, and highly developed food service practices; and outside sources of food such as post exchanges

and canteens are not nearly as frequent or extensive as in this country. A variety of rationing systems is used, including a monetary allowance, issues in kind, or both. Differences between the services usually reflect differences in size, procurement of food, messing, or level of organization.

In countries with separate police forces, the nutritional state was somewhat poorer among the police than among the military. In all countries in which comparison was made, noncommissioned officers and officers had a slightly better nutritional status than privates, and the nutritional state of recruits was found to be inferior to that of soldiers with longer service.

In every country, there were deficiencies in field or operational rations, inadequacies in procurement, cooking, messing, and food service procedures, and inadequate sanitation. In 3 countries, food wastage was related to these deficiencies. None of the countries had an organized, staffed, and equipped nutrition service for the military, although some had civilian institutes and university departments of nutrition. As stated above, in those countries in which sufficient data were available, the nutritional state of the civilian population was poorer than in the military.

Opportunities for significant improvement in food production and quantity, processing, sanitation, and transport existed in every country, without the use of impractical, improper, or too costly methods. In all countries there was an intense and sincere interest in nutrition and its problems, with a desire to improve, to study nutrition, and to educate the public.

RECOMMENDATIONS

Recommendations were similar in all 8 countries, and included:

1. Addition of green and yellow vegetable to rations and diets to add vitamins A and C, and of protein, including somewhat more animal protein, which would also add riboflavin.

2. Development of satisfactory field rations, to be correlated with improvement in food technology.

3. Organization of a full-time nutrition service, military, civilian, or both, properly related and conducted, to study nutritional status, conduct surveys, develop proper nutrition practices, educate the public and nutrition personnel of all levels, and conduct research.

4. Improvement of kitchen equipment and practices and sanitation.

5. Measures to increase production, improve processing, storage, and transport of food.

6. The development of indigenous foods of a wide variety, and in a few instances, the use of enriched basic foods.

As a concrete example, I present the recommendations for 2 countries; one relatively undeveloped, with a very small military force, the other well developed with a relatively large armed force.

Libya

The following recommendations were made for this country:

1. The Development Council should appoint a national advisory committee on nutrition composed of authorities in health, nutrition, economics and agriculture, together with administrators and consumers' representatives, and provide it with facilities for the efficient conduct of its work. This committee should have the definite responsibility and the means to encourage and organize nutrition research, arrange for the training of Libyans as specialists in nutrition, assess levels of nutrition, and review and coordinate nutritional activities of other agencies. It should be able to guide at the highest level those responsible for framing national policies on subjects related to nutrition, and where deemed advisable special sections of this committee could operate at a provincial level. Through its scientific members, and eventually through trained personnel, the committee should conduct nutrition surveys, determine nutritional standards, and provide advice on such shortcomings as may exist.

For this purpose, the following suggestions are made:

a. Nutrition surveys should be conducted from time to time by a qualified team composed of a physician, a nutritionist, and a biochemist, supported by other specialists as may be required, such as sanitary engineers and food technologists. The biochemical laboratory essential for assessment of nutritional status could also investigate and advise on the nutritive value of local and imported foods.

b. The committee should provide technical advice for national nutrition education programs, with agencies to carry the program to rural communities and cities through agricultural facilities and institutions, health centers, clinics, and schools. The cure and prevention of rickets could be attained by public education on the need for proper food and adequate exposure to the sun in infancy. Educational efforts to increase production and use of carrots, tomatoes, oranges, and other fresh fruits and vegetables would greatly improve the nutrition of the whole population.

2. The armed forces should establish an advisory committee on military nutrition and food service, to deal with problems pertaining to the feeding of troops and to assure maintenance of a high level of nutrition and physical efficiency of troops. If desired, this committee might function as part of, or in conjunction with, the national advisory committee on nutrition. It is suggested that the committee include representatives of the general staff, officers who supervise food purchasing and food service (future quartermaster corps officers), and medical personnel.

Functions of this committee might be to:

a. Organize a school for food-service personnel, providing apprentice training in selected military kitchens.

b. Supervise planning for different rations issued to the armed forces and testing of field and emergency packaged rations when developed.

c. Assess periodically the nutrition status of the armed forces, with the

same personnel conducting such studies under the national advisory committee on nutrition.

d. Arrange for the training of nutrition specialists.

e. Program nutritional education for the armed forces.

3. Efforts should be made by the armed forces to correct low intakes of vitamin A, thiamine, and ascorbic acid. Provision and consumption of *authorized* quantities of milk, potatoes, and fresh vegetables, and reduction of food waste, would contribute toward a more adequate intake of vitamins and minerals. Fruits in season, such as oranges, should continue to be substituted in part for vegetables, as they were during the survey. Soldiers should be permitted and encouraged to take second helpings when available.

4. The food issue should be redistributed during the day to allow for greater caloric intake at the start of the working day and also for a wider variety at breakfast, thus tending to reduce the present high levels of bread wastage.

5. Responsibility for maintaining standards of messing should be assigned to designated officers in each unit.

6. Consideration should be given to the organization of a quartermaster food services corps.

7. Mess sanitation should be improved by placing screens on kitchen doors and windows, covering garbage cans, and using hot water for cleansing utensils.

8. The use of solar water heaters should be investigated and if practicable, they should be installed.

9. Kitchen smoke should be reduced by periodic cleaning of flues and by equipping pots with tight-fitting collars.

10. Mess gear of a uniform pattern should be provided for each individual soldier.

11. The practice of having local military gardens, as observed during the survey, should be encouraged wherever feasible. If possible, operation of such gardens should be supplemented by an organized program of agricultural instruction, especially for troops who will soon return to civilian life in rural areas.

Most of these recommendations for the Libyan armed forces are applicable to the provincial police and to defense forces subsisting in barracks:

12. In the interests of economy, each province should appoint a representative on the advisory committee on military nutrition and food service, which might then integrate all matters pertaining to the nutrition of the provincial police and defense forces.

13. An official ration should be designed for these forces, possibly patterned after the official army ration.

14. Attention should be paid to the nutritional health of those members of the police and defense forces who eat at home. There are at least 2 methods of achieving this, by instruction of men and their families in principles of nutrition, and by providing adequate food allowances for those living at home.

15. The Ministry of Education should institute a program for recording age, height, and weight of school children each year, these data being vital for assessing the growth and development of the nation's children.

16. The already substantial child feeding and school lunch program should be continued.

17. Maternal and child health centers should be strongly supported, and wherever possible, should assist in improving the nutritional status of the popu-

lation by educational and therapeutic efforts directed at mother and child. The value of such a program would be enhanced by continuing studies of the nutritional status of women and children attending the centers.

18. Investigations as to feasibility of increasing the local production of legumes, poultry, eggs, fish, and sugar should also be continued, since these products would add much to the nutritional value of the present diet. The effort to develop a date- and palm-sap sugar industry, is commendable from an economic standpoint, and production of domestic syrup and crude sugar, particularly if sold at a reasonably lower price, would reduce the need to import refined sugar.

19. The sizable effort now being put into developing fruit production in Libya should be further encouraged, and additional work on fruit, vegetable, and grain storage and transport would be justified.

20. The possibility of the economic production of tea in the Gebel should be investigated, since 10 percent of the country's foreign exchange expenditure is for tea.

21. The formulation of import-export policies pertaining to food should consider nutritional values. For instance, when importing cereals is necessary for making bread or macaroni, these might be imported as grain rather than flour if this practice would not unduly increase the net cost. This would provide work for already established flour mills and by-products for the animal industry, and would also afford an opportunity for the domestic production of an undermilled flour, consistent with local food habits.

Spain

The recommendations for Spain were as follows:

1. The armed forces should establish a nutrition section under the medical department, which would benefit by close association with the many competent men in nutrition among civilian physicians and scientists. This group should prescribe the military diet and assure its continuing adequacy. Mess halls should be inspected for maintenance of proper health and nutritional practices in the handling and preparation of food and surveys made of selected military populations to be certain that nutritional deficiencies do not exist. This group should report its findings to central authorities at regular intervals, making recommendations to the same authorities on nutritional standards.

2. A food service section should be established under the quartermaster department, charged with implementing recommendations of the medical department group. It should devise means of improving food acceptability, mess procedure, and mess sanitation, and find effective ways to distribute its ideas to units in the field, perhaps through assignment of specially trained officers to individual regiments. This section should also prepare and distribute cookbooks and guides for menu planning, and assist mess personnel in planning, buying, and preparing nutritionally adequate and acceptable meals. A central school, to which unit enlisted mess personnel would be sent for brief courses of instruction in the basic principles of food procurement and storage, and of mess sanitation, nutrition, and cookery, should also be organized.

3. All members of the Armed Forces should be given some basic education in personal hygiene and nutrition. Because the bulk of the military services consists of trainees and almost all young men in Spain must undergo military service, these trainees returning to civilian life would bring back higher standards of sanitation and nutrition to their home villages.

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The following recommendations, based on the report of the agriculture and food scientist, are not directly applicable to the military:

4. Increased yields of food crops should be sought through the use of more fertilizers and better seed. There is need for additional machinery to improve the efficiency of production, and for more homegrown feed to expand livestock production and make operations more efficient. An expanded program of irrigation would make the present cultivated land more productive and bring other land into production.

5. Data compiled each year on food supplies available for human consumption should be converted into available per capita calories, protein, minerals, and vitamins. To evaluate the adequacy of these caloric and nutrient supplies, a standard of needed intakes based on age and sex distribution, adult body size, and activity of the population should be established.

6. Continuous dietary surveys to evaluate adequacy of diets of selected segments of the population, should be supplemented when feasible by clinical and biochemical studies.

7. In the interest of advancing the food and nutrition program of Spain as a whole, further cooperation between government units concerned with various segments of the program should be developed.

8. An expanded program of food and nutrition research by agricultural, nutritional, and medical scientists is needed, which, in turn, calls for the training of more scientists qualified to undertake such research.

EFFECTS OF THE SURVEYS

Too short a time has lapsed to demonstrate the influence of these surveys on the nutritional health of the armed forces of the surveyed countries, with the exception of the Republic of Korea. In 1953, a survey was made of the Republic of Korea's armed forces, and recommendations similar to those described were made and implemented. In 1956, a resurvey was made by the ICNND. The nutritional state revealed by the 2 surveys and the improvement following the introduction of improved practices are shown in table 1, and figures 2, 3 and 4.

Aside from the knowledge of the nutritional state gained by the assessments, there have been a considerable number of interesting and important related results. The recommendations made as a result of the survey are presented only with the official report after being approved by the committee and its agencies and presented to the United States assistance group in the country concerned. However, results are discussed in a preliminary fashion with the proper agencies of the host country at the conclusion of the survey, and some indication of the significance of the findings is given.

I am happy to say that in many instances progress has been made in implementing these recommendations. A nutrition service or institute has been established, either military or civilian, in 3 countries. Plan-

Table 1. ***Nutritional level of Korean troops before and after 16 weeks of service, U.S. Army survey 1953 and ICNND survey 1956. (Figures are percentages of total number examined.)***

Nutritional factor	*1953*		*1956*	
	Raw recruits	*After 16 weeks' training*	*Raw recruits*	*After 16 weeks' training*
Caloric status				
Below 90 per cent standard weight	27.0	46.0	29.0	26.0
90–110 per cent standard weight	72.0	53.0	71.0	67.0
Protein				
Leg edema	0.2	6.0	–	–
Serum protein <6 grams	–	11.0	–	–
Thiamine				
Calf tenderness	4.0	4.0	–	–
Vitamin C				
Scorbutic gums	21.0	46.0	–	0.6
Serum vitamin C <0.2 mg/100 ml	60.0	100.0	3.0	–
Vitamin A				
Follicular keratosis	3.0	13.0	5.0	4.0
Serum vitamin A <20 μg/100 ml	–	17.0	–	–

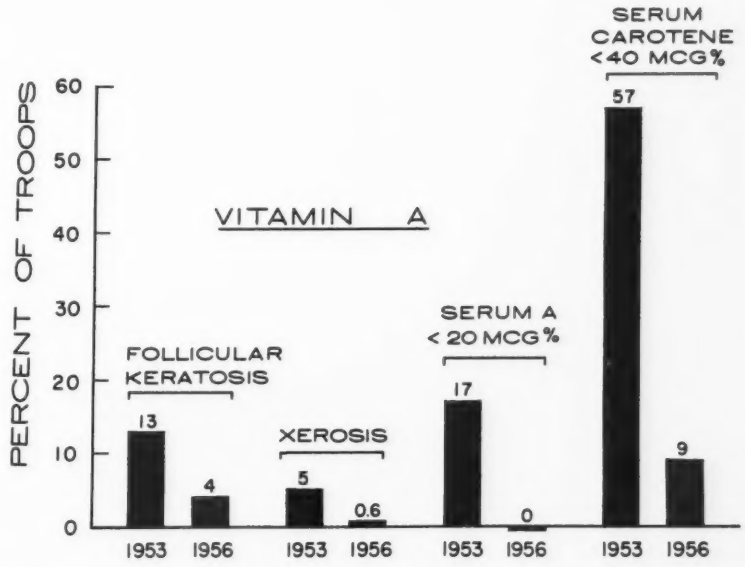


Figure 2. Improvement in nutritional level between 1953 and 1956 of Korean troops with 16 weeks' service. Vitamin A deficiency.

ning and progress in this direction is occurring in 3 others. In 1 country arrangements have been made for a civilian institute to serve the military. Some or all of the desirable activities of such a nutrition service will be instituted by these agencies. In 2 instances, ICA is arranging to supply professional personnel to head these activities. In 2 countries in which a nutritional service has been established, further surveys have already been made, some are in process, nutritional studies and research have commenced, and educational programs begun. In 1 country, a large canning factory has been rehabilitated and reopened, and production of items useful for field rations begun, and a similar project is planned in another country.

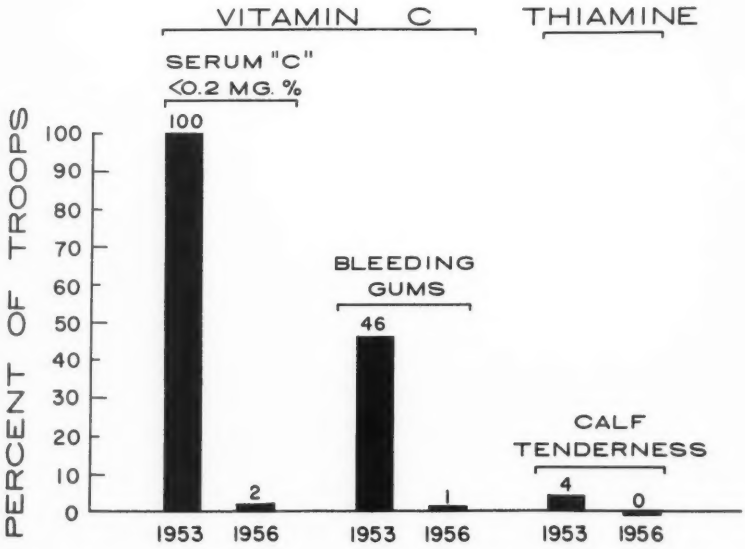


Figure 3. Improvement in nutritional level between 1953 and 1956 of Korean troops with 16 weeks' service. Vitamin C and thiamine deficiency.

One of the most important results of these surveys has been training of local personnel at all levels. In addition to assisting technical and professional personnel, physicians, biochemists, food technologists, agricultural experts, and auxiliary health personnel, this training has stimulated an interest in nutrition in the medical profession and other groups, as well as in governmental agencies such as agriculture and the ministries of health and social welfare.

An example of the interest in nutrition aroused is the establishment of the Internation Nutrition Committee, which developed as a result of surveys in Iran and Pakistan. This organization, which includes the United States, the United Kingdom, and Turkey, as well as Iran and Pakistan, organizes and conducts annual conferences on nutrition, to which representatives of other countries are invited.

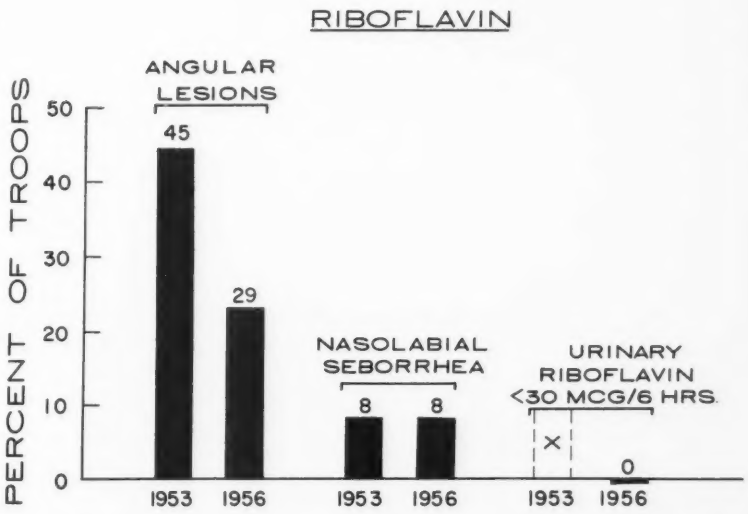


Figure 4. Improvement in nutritional level between 1953 and 1956 of Korean troops with 16 weeks' service. Riboflavin deficiency.

In addition to surveys, ICNND provides continuing advice on technics and procedures, assistance in securing personnel, information regarding the sources of supplies, such as reagents and instruments, and follow-up visits by consultants. Assistance is given in arranging for further education and training of citizens in this country and elsewhere, in the selection of centers for study, and in making arrangements for admission and for sources of support. Because of its organization, the committee is more flexible than other agencies, and better able to provide such services.

The surveys have been successful in every country, not only because of the information gained by the assessment, but also because of related benefits—development of friendship, institution of nutritional programs, education of persons at all levels, including those

high in government, fostering of good will and understanding among people of many countries and the unity that results from working together towards a common goal. An understanding and appreciation of the problems of foreign countries as well as friendships have been gained by American personnel.

The success of these surveys can be attributed to a number of causes. International cooperation in professional fields, in science, and particularly in the health sciences is, as a rule, easily accomplished when political conditions do not interfere. It may proceed fairly well even when the political climate is unfavorable. The teams have been composed of experts with a clear, specifically defined purpose and an objective that they know how to accomplish promptly and decisively. Surveys were conducted at the request of the country concerned, with full knowledge and concurrence between the various agencies of the host countries and our own, and an absence or minimum of concern with political or ideologic matters. The sincere, friendly attitude on the part of the team personnel, and their endeavor to recognize the good and to refrain from criticism, from invidious comparison, and from complaint in respect to host countries, resulted in much good will. Finally, the care and efficiency with which the secretariat has conducted the work of the committee and the support that the committee has received from the sponsoring agencies have resulted in a smoothly running, competent program.

CONCLUSION

I believe it has been clearly demonstrated that the program of nutrition surveys or assessments organized and conducted by the ICNND in foreign countries participating in the Mutual Defense Assistance Program is, and has been, an effective, efficient, and economic instrument for mutual benefit to the United States and the countries concerned. In addition to the material benefits of improved nutrition, professional, technical, and public education, additions to scientific knowledge, and improvements in agriculture and food technology, the surveys have added immeasurably to the mutual understanding and friendship of peoples and governments. By virtue of their concern with a basic need for life, people of many lands are able to unite in measures to improve the health and happiness of men everywhere.

A Decade of Reporting Military Medicine

THE ARMED FORCES MEDICAL PUBLICATION AGENCY was established by the Department of Defense on 17 November 1949 as a joint activity of the Departments of the Army, Navy, and Air Force, for the purpose of editing and publishing a new military medical journal. On 22 March 1949 Secretary of Defense James Forrestal had given his approval to the general plan of establishing such an agency. Later that year, Secretary Louis A. Johnson, his successor, directed the establishment of the Armed Forces Medical Publication Agency and stated that publication of the new journal emphasized the close unity and cooperation that have always existed among the medical personnel of the Army, Navy, and Air Force.

In January 1950 the first monthly issue of the *United States Armed Forces Medical Journal* appeared. Born in an era of service unification, the *Journal* succeeded the *Bulletin of the U.S. Army Medical Department* and the *U.S. Naval Medical Bulletin*, whose editor, Captain Joseph L. Schwartz, became the first editor of the *Journal*. Colonel Wayne G. Brandstadt, last editor of the Army *Bulletin*, became the first Army editor of the *Journal* in 1951, in accord with the policy of rotating service representation for the editor's post. In 1957 a Department of Defense directive amended the original organization of the Armed Forces Medical Publication Agency to include a civilian associate editor and deputy director of the agency, and an editorial board composed of a representative of each of the military medical services. In July 1959 Dr. May Sherman was designated as associate editor. The members of the first editorial board are Colonel John B. Coates, Jr., MC, USA; Captain Frank T. Norris, MC, USN; and Colonel John F. Dominick, USAF, MC.

Since January 1955 the *Journal* pages have included reports of clinicopathologic conferences presented at the larger Army, Navy, or Air Force hospitals. A military medical news section was added in late 1954. With the October 1959 issue the *Journal* returned to letterpress reproduction and appeared in a new format.

The *Journal*'s worldwide circulation of more than 25,000 copies

includes distribution to all medical service officers on active duty, to many reserve officers in private practice, to medical and dental school libraries, and to editors of other medical periodicals on an exchange basis. During the Korean War, *Journal* circulation figures reached a high of nearly 40,000 copies a month.

Source of manuscripts, by affiliation of senior author, published in U.S. Armed Forces Medical Journal from January 1950 through December 1959

Year	Army	Navy	Air Force	Other	Total
1950	97	91	17	23	228
1951	113	97	27	16	253
1952	119	78	51	13	261
1953	117	54	57	20	248
1954	83	64	39	20	206
1955	79	54	29	19	181
1956	79	60	35	10	184
1957	74	60	44	12	190
1958	73	49	27	14	163
1959	34	32	39	17	122
Total	868	639	365	164	2,036

Since January 1950 the *Journal* has published more than 2,000 medical articles contributed by officers of the military medical services and other authors without military affiliation. The published reports have been informative, diverse, and often controversial—covering professional and administrative aspects of the medical sciences, including all the clinical specialties, as well as an occasional historical note. It is the mission, as well as the good fortune, of the *Journal* to have reported many advances and new developments in military medicine in the Armed Forces. The senior authors of 868 papers were regular and reserve officers of Department of the Army medical services. Papers from Navy medical service authors totaled 639, with 365 contributed by Air Force medical service personnel. In its 10-year history more than 2,700 reviews of new books and monographs have appeared in the *Journal* pages. This broad coverage of medical texts has given *Journal* readers an average of about 20 reviews in each issue.

In observance of the *Journal*'s tenth anniversary, the editors are appreciative of the many congratulatory messages and good wishes that have been received. Excerpts from these letters appear on the following pages and additional ones will be published in subsequent issues.

THE JOURNAL EDITORS

Joseph L. Schwartz
Captain, MC, USN
1950

Frederic W. Farrar
Captain, MC, USN
1950–1951

Wayne G. Brandstadt
Colonel, MC, USA
1951–1953

Robert J. Benford
Colonel, USAF, MC
1953–1955; 1958—

Bennett F. Avery
Captain, MC, USN
1955–1958

EDITORIAL BOARD OF THE JOURNAL

John B. Coates, Jr.
Colonel, MC, USA

Frank T. Norris
Captain, MC, USN

John F. Dominick
Colonel, USAF, MC

Greetings and Congratulations

American Hospital Association
Chicago, Illinois

Greetings and congratulations from the American Hospital Association on the tenth anniversary of the United States Armed Forces Medical Journal.

RUSSELL A. NELSON, M.D., PRESIDENT

National Library of Medicine
Washington, D.C.

Congratulations on your tenth anniversary. The new format and typography of the Armed Forces Medical Journal are wonderful improvements and make all the difference in the world.

FRANK B. ROGERS, M.D., DIRECTOR

New York, New York

The congratulations and good wishes I send to you concerning the tenth anniversary of the United States Armed Forces Medical Journal come from one who was pioneering in speed and altitude flying back when aviation medicine was only a gleam in the eyes of a few scientists and pilots were on their own. I found out many things the hard way back in the early thirties. At times, the lesson ended with a ruptured eardrum or a hemorrhaging sinus and once, from lack of sufficient oxygen coming through a corncob pipe stem attached to a tube during a sustained climb for an altitude record, I became disoriented and on my way down leveled out to make a landing while still 5,000 feet above the ground. Then, in 1936, on separate occasions, I talked with three doctors who were working in the field of aviation medicine—Dr. Banton in England, Captain (now Major General, Retired) Harry Armstrong at Wright Field, and Dr. "Randy" Lovelace at Mayo Clinic. These men were working in laboratories and were putting some animals in the air for tests. In those days, there were no such things as pressure cabins, pressure suits, or high-altitude oxygen masks in operational use. Occasionally, I became a human guinea pig for some of these men. I tried out every model of oxygen mask from the first, as well as a combination of oxygen and helium. Also, I experimented with a vibrating seat to maintain circulation during long flights. In 1937, as a member of the Collier Trophy Committee, I prevailed on the Committee to recognize the work in aviation medicine as the outstanding accomplishment of the year. Some of the men just mentioned received that trophy from the hands of President Roosevelt with General Arnold among those present. The WASP (Women's Airforce Service Pilots) program, which I headed up during World War II, was to a large degree a research in aviation medicine. The more than 1,000 women pilots were being tested to see how they would respond or perform compared with the men pilots under various conditions in case the country might have to call for the mass use of women pilots. I worked closely in that program with the aeromedical men. The women in the WASP came through with flying colors. So, I hail all the people who have made it possible for the pilot to go along safely with the plane, mach after mach in speed and also higher and ever higher—even soon into outer space. And I salute you for your fine participation in all the group efforts in the field of medicine that mean so much to our Armed Services.

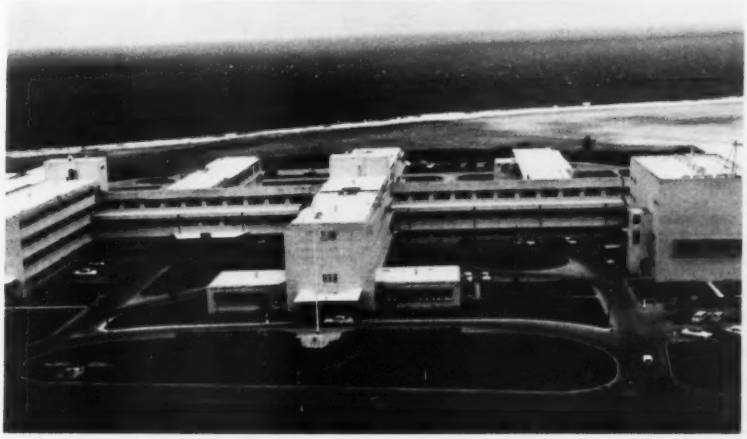
JACQUELINE COCHRAN

TENTH ANNIVERSARY GREETINGS

MEDICAL LIBRARY ASSOCIATION
A. W. CALHOUN MEDICAL LIBRARY
EMORY UNIVERSITY
ATLANTA, GEORGIA

ON THIS, THE TENTH ANNIVERSARY OF THE UNITED STATES ARMED FORCES MEDICAL JOURNAL AS THE PROFESSIONAL PUBLICATION OF THE MEDICAL PERSONNEL OF THE DEPARTMENT OF DEFENSE, I SEND YOU GREETINGS FROM THE MEDICAL LIBRARY ASSOCIATION. IT IS GRATIFYING TO ME TO HAVE THIS OPPORTUNITY TO OFFER YOU OUR CONGRATULATIONS. WE SALUTE THE JOURNAL FOR ITS PAST ACHIEVEMENTS. WE ANTICIPATE WITH CONFIDENCE ITS FUTURE ONES.

MISS MILDRED JORDAN, PRESIDENT



U.S. Naval Hospital, Guam, Mariana Islands

A Decade of Vigorous Life

University of California
School of Public Health
Berkeley, California

As we enter the second decade of the vigorous life of the U.S. Armed Forces Medical Journal, may I join with thousands of others in paying tribute to its past successes and looking forward with keen anticipation to its future. For many years it has been my privilege to serve on commissions, and more recently, on the Central Board of the Armed Forces Epidemiological Board. The Journal and Board are inspiring examples of the strength of the individuality of the three Armed Services united in the common defense of our country. The new look of the Journal is a symbol of its hustle and ability to move ahead in our ever changing world. We all salute the Journal and look forward eagerly to the original articles and experiences which contribute so greatly to the quality of medicine in all three services.

CHARLES E. SMITH, M.D., DEAN

Important Milestone

Industrial Medical Association
Chicago, Illinois

Congratulations to you and your editorial board on the tenth anniversary of publication of the United States Armed Forces Medical Journal. We believe this marks an important milestone in the annals of military medicine. Many of us who have spent some time in military service or who continue on in reserve units feel the need of this contact professionally with our counterparts in the Armed Forces. Keep up your good work and all best wishes from the Industrial Medical Association.

D. JOHN LAUER, M.D., PRESIDENT

Cancer Research Institute
New England Deaconess Hospital
Boston, Massachusetts

I am happy to note that the U.S. Armed Forces Medical Journal is marking its tenth anniversary. I have found the Journal an effective source of medical information pertaining to the responsibilities of medical officers and hence an excellent means of keeping abreast of the needs and the accomplishments of military medicine. Hearty congratualtions on the achievement of this significant milestone! In these days when threat of war is never far from us, it is encouraging to know that the Armed Services are sharing effectively with one another their medical knowledge with an eye to improving the already incredibly high standards of successful treatment achieved in the latter part of World War II and the Korean incident.

SHIELDS WARREN, M.D.

Rapid Growth, Rising Standards

Mayo Clinic
Rochester, Minnesota

To all who have had to do with the conception, birth and rapid growth to adulthood of the U.S. Armed Forces Medical Journal, I send congratulations. I do so wholeheartedly and without reservation, not only as a doctor of medicine who reads your journal but also as editor of *Postgraduate Medicine*, from the standpoint of one journal congratulating another. Your publication has served a real need in a superior manner. May you have countless healthy and happy birthdays.

C. W. MAYO, M.D.

University of Oregon Medical School
Portland, Oregon

Heartiest best wishes to you and your staff on the occasion of the tenth anniversary of the United States Armed Forces Medical Journal. This interesting publication has been kept on a high plane from its beginning, and I have been very happy to see how its standards have risen through the years. I always

look it through carefully, and frequently find interesting and informative material. You have my best wishes for continued success.

HOWARD P. LEWIS, M.D., PROFESSOR AND CHAIRMAN
DEPARTMENT OF MEDICINE

U.S. Air Force Hospital, Andrews Air Force Base, Washington, D.C.

Pharmaceutical Manufacturers Association
Washington, D.C.

I am delighted to have an opportunity to extend greetings to the United States Armed Forces Medical Journal on its tenth anniversary. While this may be the professional publication of the Department of Defense medical personnel, it certainly contains a wealth of material that has been enjoyed by many others, and its contributions and those responsible for them certainly deserve praise. As one who has been exposed for some time to medical literature, I hope the Journal will long be continued and will grow in ways commensurate with the growth in its recognition.

AUSTIN SMITH, M.D., PRESIDENT

Position of Respect and Authority

University of Nebraska
College of Medicine
Omaha, Nebraska

May I extend hearty congratulations to the editors and staff of the U.S. Armed Forces Medical Journal as it approaches its tenth anniversary. It has established a position of respect and authority in the field of medical literature. It has served, also, I believe, to develop the pride and self-confidence of the medical departments in their very sound accomplishments. It has served also to make the medical profession generally and students in the field aware of the status and performances of the medical services. Best wishes for the continued success of the Journal.

J. P. TOLLMAN, M.D., DEAN

Columbia Presbyterian Medical Center
New York, New York

I want to take this opportunity to congratulate you on the tenth anniversary of the publication of the U.S. Armed Forces Medical Journal. The U.S. Armed Forces Medical Journal has rightfully taken its position amongst the outstanding medical journals of the world. The ever increasing importance of the Armed Forces in the field of clinical and research medicine is becoming more evident day by day. It is obvious that in the future you will command an ever increasing responsibility and respect. Today the superior scientific approach to our multifaceted problems in medicine is being solved on an equally high plane both in military and civilian medicine. I think it can truly be said that there is no difference between military and civilian medicine and I do believe that the close liaison which now exists is in a large part due to the bridging of a gap which previously existed by your outstanding publication of the U.S. Armed Forces Medical Journal. The entire orthopedic profession wishes you well and continued superior success in the future.

FRANK D. STINCHFIELD, M.D.

Official Spokesman

American Academy of General Practice
Kansas City, Missouri

On the occasion of the tenth anniversary of the U.S. Armed Forces Medical Journal, the American Academy of General Practice sends greetings and congratulations. We family doctors are well aware of the values of such a journal and of the value of an enlightened medical group to guide the medical care of our many government operations. This journal can and does serve such a purpose. It has been frequently observed that from wars, the science of medicine is the only real winner. It is readily acknowledged that during such times of stress much is learned in medicine. It has been my personal experience to review portions of the medical records of World War I and, to a greater extent, of World War II. The more complete records of the second conflict are indeed illuminating and can almost serve as texts for our future physicians. These records are remarkably lucid and complete. They are a tribute to the leaders of medicine in our various services, who were determined that medical advances should not be lost. With the advent of peace, the changes, the education, and the development of medical science become less spectacular but none the less important. This, then becomes the task of the Armed Forces Medical Journal. Its accomplished and seasoned editorial force is carrying out its mission. The American Academy of General Practice salutes the Journal and the many thousands of physicians for whom it is the official spokesman.

FOUNT RICHARDSON, M.D., PRESIDENT

American Dental Association
Ann Arbor, Michigan

It is a pleasure for me to extend on behalf of the officers and trustees of the American Dental Association sincere congratulations to the United States Armed Forces Medical Journal on the observance of its tenth anniversary of publication. The Journal has made noteworthy contributions not only to the professional knowledge of members of the Armed Forces health services but also to their awareness of mutual problems and aims. As our country has advanced in its recognition of the value of progress in all phases of health, so too has the need

advanced for creation of additional responsible professional and interprofessional vehicles of communication. In this regard, the United States Armed Forces Medical Journal has constituted an invaluable addition to the publications field. I am confident that the Journal's second decade will bring further success in its efforts to provide a representative source of information to the thousands of members of the health professions and related disciplines who wear the uniforms of the country's Armed Forces.

PAUL H. JESERICH, D.D.S., PRESIDENT

American Veterinary Medical Association
Chicago, Illinois

Having heard that the United States Armed Forces Medical Journal will celebrate its tenth anniversary as the official publication of the military professional medical personnel, the staff of the American Veterinary Medical Association and its journals take this opportunity to extend congratulations and best wishes for many years of continued, successful service.

D. A. PRICE, D.V.M., EDITOR-IN-CHIEF

Patterson Army Hospital, Fort Monmouth, New Jersey

Mayo Clinic
Rochester, Minnesota

I wish to congratulate the Armed Forces Medical Journal and its editorial staff on its tenth anniversary as a professional publication of the Department of Defense medical personnel. While it is the chief function of this Journal to disseminate medical information to the military services, I feel that it has furnished still another excellent and needed service by making available to civilian groups numerous advancements in the military medical field. May I compliment you on this most excellent Journal and wish for it to continue a long and productive career.

JAN H. TILLISCH, M.D.

Civilian and Military Medicine

Aerospace Medical Association
Washington, D.C.

As president of the Aerospace Medical Association, formerly the Aero Medical Association, I have looked with great favor upon the publication of the U.S. Armed Forces Medical Journal. I have had the pleasure of reading articles in it from time to time. I feel that it serves a very worthwhile purpose not only for the Armed Forces but for those of us who are in civilian life and who wish to acquaint ourselves with some of the problems that appear in military life. The Armed Forces Medical Journal is to be congratulated on 10 years of steady publication, affording the young doctors in the Armed Forces a medium for publication of some of their original research. There have been many of your men who have utilized this Journal as a stepping stone to research and further publication in other media. I think it serves very worthwhile purposes. Congratulations and keep up the good work. The best of everything from the Aerospace Medical Association to the U.S. Armed Forces Medical Journal.

LUDWIG G. LEDERER, Ph.D., PRESIDENT

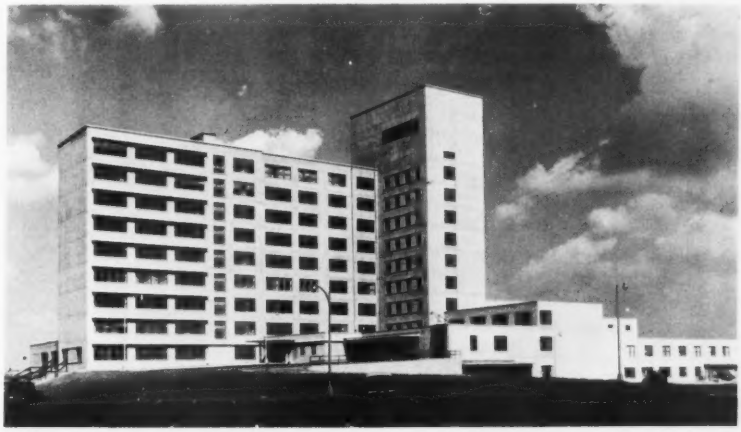
U.S. Air Force Hospital, Elmendorf Air Force Base, Alaska

American Medical Education Foundation
Chicago, Illinois

Hearty congratulations on the tenth anniversary of the U.S. Armed Forces Medical Journal. This publication has taken its place among the outstanding professional periodicals in the United States. Members of the Armed Services, including those of us who are inactive, have every right to be proud of this medium of information of scientific material. While the contents are primarily of interest

to members of the Armed Forces there is a geat deal of material of general interest to the medical and allied professions other than those of the Armed Forces. The new cover and format add materially to the appearance of the Journal.

GEORGE F. LULL, MAJOR GENERAL, MC, USA (RET.) PRESIDENT



Ireland Army Hospital, Fort Knox, Kentucky

Mayo Clinic
Rochester, Minnesota

It becomes ever more evident that there is a definite place in medical literature for a Journal embracing the work and thoughts of medical military personnel. In the past I have read with great interest not only the everyday orthopedic problems, but especially those that in some phases are peculiar to the military. With the ever increasing scope of operation including space and the expanded research facilities and work of the military, I shall continue to be a very interested reader of the Armed Forces Medical Journal.

W. H. BICKEL, M.D.

Fulfilling a Mission

University of Texas
Southwestern Medical School
Dallas, Texas

On its tenth anniversary, I take this opportunity to extend to you and your staff my greetings and best wishes for the continued growth and success of the U.S. Armed Forces Medical Journal. As the professional publication of the Department of Defense medical personnel this Journal has been eminently successful in carrying out its mission during its first decade of publication, not only in presenting matters of particular interest to the physician in the military service but also as a medium for the publication of scientific and clinical work of general medical interest. The quality of professional achievement in military as in civilian medical practice is reflected by the extent to which this is accompanied by original

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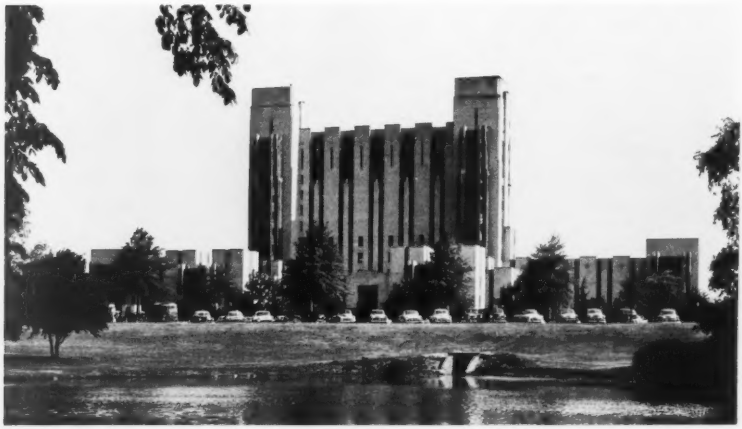
investigations and observations of clinical significance. As the medium for the publication of the results of such studies, the Armed Forces Medical Journal should in its next decade of publication assume an increasingly important place in medical literature and reflect the high quality of the professional services rendered by the military medical personnel. May the future see it join the top ranks of medical journals devoted to the dissemination of knowledge for the betterment of practice not only in the armed forces but humanity generally. With my best wishes for the continued success of your efforts, I am,

ARTHUR GROLLMAN, M.D.



U.S. Naval Hospital, Philadelphia, Pennsylvania

Eastern Air Lines
New York, New York

Twenty-three years ago, when we organized the first Medical Department in air line history and employed medical science for the development of the same system of "preventive maintenance" for our flight personnel that we had prescribed by mechanical means to maintain fail-proof performance in our aircraft, we were pioneering in a practically unknown field. From that humble beginning aviation medicine, in both civil as well as military fields, has come to be recognized as one of the most important of the aeronautical sciences. In the first ten years of its existence the U.S. Armed Forces Medical Journal, by ethical reporting of the vastly expanding research now being carried on, not only by our Armed Forces but by practically all of the world's leading airlines and many of our great institutions of learning, has made an excellent contribution to a better recognition of the complex problem involved in adapting the human mechanism for the special environment toward which our technological sciences are rapidly projecting mankind. The Journal, in its first historic decade, has recorded the problems and presented the solutions so far developed in our transition to transsonic speeds. In the years that lie ahead it can, and I am confident it will, serve an even more valuable function in compiling and distributing the professional

medical guidance upon which the welfare of man depends in this vast area of limitless opportunities which awaits our adventure into outer space. To those who conceived the vital mission of the Journal, as well as to those who have so fruitfully labored in its production, go my heartiest congratulations on the occasion of its tenth anniversary issue and with all good wishes for continuing progress in the years ahead.

E. V. RICKENBACKER, CHAIRMAN OF THE BOARD

U.S. Air Force Hospital, Ramey Air Force Base, Puerto Rico

Department of Health, Education, and Welfare
Washington, D.C.

During the ten years in which the United States Armed Forces Medical Journal has been published it has served a very important mission and is deserving of sincere congratulations. We all realize that fundamentally there is little difference between civilian and military medicine, and yet there are certain areas of specialization in both which need to be stressed and which are of universal interest. The Armed Forces Medical Journal has brought to civilian medicine certain problems with which military medicine has been faced as well as the result of research activities, and has kept the members of military medicine informed concerning new discoveries and methods developed in civilian medical and research centers. Since the rotation of young physicians through the Armed Forces medical departments became established, an increased interest in military medicine has been evinced throughout the medical profession, and a closer relationship has been nurtured between military and civil medicine which has contributed to and will continue to contribute to the medical background of the coming generation of physicians. Congratulations to the entire editorial board of the Armed Forces Medical Journal, and may they continue to support a program which will fill a much needed place among medical periodicals.

WINCHELL McK. CRAIG, M.D.
SPECIAL ASSISTANT TO THE SECRETARY

Vanguard of Medical Progress

Arlington, Virginia

The tenth anniversary of the United States Armed Forces Medical Journal is at hand. I was in the Navy's Bureau of Medicine and Surgery at the time of its birth and consequently have been interested in the fortunes of this publication. During the decade of its existence I have read all of some and some of all of its issues, and have been gratified to observe the high standard of excellence that has been maintained by its contributors and by its editors. "Publish or perish" is axiomatic, particularly in the field of research, but that cliché is applicable, in an estimable measure, to all fields of medical endeavor. It has for long been a source of genuine satisfaction to me to see military medicine and those who represent it in the vanguard of medical progress. The Journal's new look is smart and pleasing. Its front cover, its format, and its typography are all distinct improvements over its forerunner. My warmest congratulations to those upon whom it has recently devolved and to those upon whom it currently devolves to keep the faith—to keep the banner of military medicine at the top of the mast and to maintain as its chief publication a journal of superlative quality.

LAMONT PUGH, REAR ADMIRAL, MC, USN, (RET.)

U.S. Naval Hospital, St. Albans, New York

Unexcelled Coverage

American Medical Association
Chicago, Illinois

As President, and on behalf of the 177,000 members of the American Medical Association, I congratulate the U.S. Armed Forces Medical Journal on the occasion of its tenth anniversary as the professional publication of military medical personnel. Your achievements during your first decade have been noteworthy indeed. The Journal can take great pride in the hundreds of scholarly articles by military authors which it has published. Also the Journal's coverage of

people and events which are of interest to its readers has been unexcelled. On behalf of the Association, I also want to express our appreciation to the Journal for making its pages available for the monthly "This Is Your A.M.A." which is prepared by our Council on National Defense. This is one more important medium by which the Association maintains contact with its more than 13,000 members in the military service. Our interest in the problems of the military physician has been a long and continuing one, and we are grateful that our task has been made easier by the fine cooperation of the Surgeons General which we have always enjoyed. I assure you that the American Medical Association, through our Council on National Defense, will continue its interest in military medicine and in the U.S. Armed Forces Medical Journal as a conscientious and effective professional publication dedicated to the advancement of the high purposes of Armed Forces medicine.

LOUIS M. ORR, M.D., PRESIDENT

Womack Army Hospital, Fort Bragg, North Carolina

The Institute of Living
Hartford, Connecticut

May I add my greetings to the many which you will receive as the tenth anniversary of the United States Armed Forces Medical Journal approaches. I have always been impressed by the professional job which is done in the selection and preparation of the articles for publication in the Journal. Also, I am aware of the fact that these articles have been seen by experts in various fields before publication was decided upon. I am delighted both with the sweep of the subjects covered and the practical method in which they are handled. I should also like to comment upon the new format of the Journal. It is excellent. May I

extend to you and your staff and all concerned my heartiest congratulations and my best wishes for the future of the Armed Forces Medical Journal.

FRANCIS J. BRACELAND, REAR ADMIRAL, MC, USNR

U.S. Air Force Hospital, Wright-Patterson Air Force Base, Dayton, Ohio

American Airlines, Inc.,
New York, New York

We, in the business of air transportation, are well acquainted with the United States Armed Forces Medical Journal . . . We are especially grateful that so many of the articles in your publication have recognized the new field of aviation medicine. As we have gone from 5,000 to 40,000 feet in the everyday operation of the airline, we have patterned our plan of operation on a sound medical basis, and much of the knowledge relating to this new field of human endeavor has come to us from the research, exploration, and evaluation of the multitudinous problems concerning high altitude, done by the medical departments of the military services, and offered for our use through the Armed Forces Medical Journal.

C. R. SMITH, PRESIDENT

Distinguished Contribution

U.S. Public Health Service
Washington, D.C.

It is a pleasure for me to send greetings and congratulations on the occasion of the tenth anniversary of the United States Armed Forces Medical Journal. During my tenure as Surgeon General of the Public Health Service, I have been privileged to work closely with many distinguished leaders in military medicine. . . . I am firmly convinced that the cooperative relationship which has long

existed among the military and civilian health resources of our Nation are responsible in large measure for the excellent health our people enjoy. During its 10 years of existence to date, the United States Armed Forces Medical Journal has made a distinguished contribution to contemporary medical literature. I know that it will maintain its standard of excellence in reporting the development of future decades.

LEROY E. BURNEY, M.D., SURGEON GENERAL

Radio Corporation of America
New York, New York

Cordial good wishes and congratulations . . . to you and the staff of the Journal on its tenth anniversary of distinguished service to military medical progress.

DAVID SARNOFF, BRIGADIER GENERAL, USA (RET.)

U.S. Army Hospital, Camp Kue, Okinawa

United Mine Workers of America
Welfare and Retirement Fund
Washington, D.C.

Warmest congratulations upon the tenth anniversary of the United States Armed Forces Medical Journal. The scientific articles and other material in the publication are read with much appreciation by the medical members of our staff, most of whom have been concerned with military medicine at one time in their lives. There is much of value also in the general field of medicine. My best wishes for continued success and expansion in the splendid contribution which your Journal is making.

WARREN F. DRAPER, M.D., EXECUTIVE MEDICAL OFFICER

Ochsner Clinic
New Orleans, Louisiana

I did not realize that the U.S. Armed Forces Medical Journal had completed 10 years of existence, but want to congratulate you on the splendid contribution that you are making to medical literature. I always look forward to reading the Journal and think that your editorial policy is excellent. Everyone in the medical profession can be justly proud of your efforts.

ALTON OCHSNER, M.D.

U.S. Air Force Hospital, MacDill Air Force Base, Tampa, Florida

Texas Children's Hospital
Houston, Texas

For the past 10 years I have followed with great interest the progress and the articles of the U.S. Armed Forces Medical Journal. May I congratulate you and your staff on your efforts. I feel that a definite contribution is being made to the medical profession, and I might add that the redesigned cover and format are most impressive.

RUSSELL J. BLATTNER, M.D., PHYSICIAN-IN-CHIEF

American Psychiatric Association
Washington, D.C.

It is a pleasure to extend congratulations to the Armed Forces Medical Journal on its tenth anniversary. Much of the impetus for psychiatry's rapid growth and development in recent years has emanated from the experience of our people in military service. Indeed, the military services generally are a major underpinning of medical progress in training, treatment, and research. It is of elementary and fundamental importance that military medicine should be reported adequately to the profession at large. The U.S. Armed Forces Medical Journal

has performed this function admirably and with distinction. We in psychiatry are grateful and wish you all possible success as you enter your second decade.

WILLIAM MALAMUD, M.D., PRESIDENT

Medium of Education

Student American Medical Association
Chicago, Illinois

The Student American Medical Association and its official publication, *The New Physician*, take great pleasure in paying tribute to the tenth anniversary of the United States Armed Forces Medical Journal. The excellence of its format, the high caliber of its teaching material, and the readability of its editorial presentation set an enviable goal for those of us in the medical publishing field to follow. Military medicine is still medicine, and those of us outside the military field are grateful for the opportunity to share the Armed Forces' clinical findings and research, almost all of which can be applied to private practice. We wish your Journal continued success in its exemplification of the professional achievements of our Armed Forces.

W. R. KIRKHAM, PRESIDENT

U.S. Naval Hospital, San Diego, California

American Academy of Occupational Medicine
New York, New York

I should like to send my greetings on the occasion of the tenth anniversary of the United States Armed Forces Medical Journal. In doing this I speak for the American Academy of Occupational Medicine and also for myself as a retired officer of the U.S. Naval Reserve. The Armed Forces Medical Journal serves at least two valuable purposes. One is to stimulate research on the part of the medical officers by offering a medium for publication, and the other is educational by publishing results of various studies of interest in military medicine. The scientific level of the articles published certainly compares favorably with any of the professional journals. Please accept my congratulations to the Journal and our best wishes for successful continuation.

LEONARD J. GOLDWATER, M.D., PRESIDENT

A Quality Publication

Alexandria, Virginia

At its inception in January 1950 the U.S. Armed Forces Medical Journal was a good professional periodical. During the 10 years since then I have been impressed with a continuous improvement in the selection of scientific papers by the editorial board and by the improvement of makeup and appearance of the Journal. The U.S. Armed Forces Medical Journal is now firmly established in the field of medical literature as a quality publication which effectively covers its specific professional area.

SILAS B. HAYS, MAJOR GENERAL, MC, USA (RET.)

Martin Army Hospital, Fort Benning, Georgia

Louisville, Kentucky

. . . I have read your publication with a great deal of interest ever since it was first started, and I think I see a distinct improvement each issue in the quality of material which you have selected. I am sure if you keep up this pace, you will have a first-class journal for a long time to come.

R. GLEN SPURLING, M.D.

Georgetown University.
Washington, D.C.

The record of the U.S. Armed Forces Medical Journal achieved during the past 10 years stands out as one eminently successful in the field of disseminating information to the medical and dental professions. The high caliber of your articles in both the clinical and research fields is well recognized, and the wide distribution of your journal makes it a most important medium of education.

TENTH ANNIVERSARY GREETINGS

Please accept my congratulations on your past achievements and my best wishes for the success which I know you will continue to achieve in the future.

C. V. Rault, Rear Admiral, DC, USN (Ret.)
Dean, School of Dentistry

Emory University Clinic
Atlanta, Georgia

I am deeply appreciative of the opportunity of seeing the monthly publications of the U.S. Armed Forces Medical Journal. I am impressed with the caliber of the medical articles presented, a few of which show original work and observation, all of which are good clinical studies and useful to all those interested in the progress of art and science of medicine. I am particularly pleased that the quality of this journal reflects the high caliber of the medical services of the Armed Forces . . . . You are to be congratulated on getting out such an effective publication.

R. Hugh Wood, M.D

U.S. Naval Hospital, Bethesda, Maryland

Erie, Pennsylvania

Permit me to congratulate you on the tenth anniversary of the U.S. Armed Forces Medical Journal. It is particularly pleasing to me to note the combining of the separate publications of the various Armed Services medical bulletins of the past into one excellent outstanding publication. The interchange of med-

ical ideas and experiences between the medical officers of the various services is invaluable to the whole profession. Since so many civilian physicians, like myself, have had some military experience in all of the services, this journal holds a unique place for us. The Journal, stimulating as it does continuing medical study and research, fosters the one thing toward which we are all working—world peace. The most ardent advocates of world peace are and should be the men who now are serving in the medical departments of the Armed Forces as well as those who have so served scattered all over the world—trained in all of the technics for the alleviation of suffering and the saving of lives, experienced in the know-how of modern diplomacy and with a keen understanding of the wants and the needs of people everywhere. These medical men become the greatest of the great ambassadors of good will. Suffering and death know no racial, religious, or national boundaries. The alleviation of suffering and the saving of lives everywhere on this planet can only bring about friendship and understanding and eventually, I hope, through the ministrations of our skillful medical, dental, nursing, and ancillary personnel, prove to the world that this America of ours is primarily interested in the real brotherhood of man. Let us strive to be healers of the sick, while at the same time we scientifically study man in all phases of his illnesses so that we may continue to lead the world to peace through medicine. I have been impressed with the quality of the scientific papers in the Journal and with the interesting news items about the leaders in the Armed Forces medical services.

ELMER HESS, M.D.

For Discriminating Readers

Veterans Administration
Washington, D.C.

Congratulations on the tenth anniversary of the United States Armed Forces Medical Journal. Its years of service have been memorable. While felicitations are always in order on such an anniversary, they are especially opportune on the score of the new format of the Journal. Dignity is added by the simplicity of its cover. Moreover, its typography and illustrations are excellent in detail and execution. The range and the quality of the contributions excite and maintain the interest of the discriminating reader. Particularly would I commend the reviewers of medical books. Routinely, I turn to this section of the Journal as an outstanding guide to the newer texts, and always with profit. May your efforts be crowned with continued success and the Armed Forces Medical Journal grow in strength and influence as a medium for the dissemination of medical knowledge.

WILLIAM S. MIDDLETON, M.D., CHIEF MEDICAL DIRECTOR

Required Reading

Massachusetts General Hospital
Boston, Massachusetts

During my tour of duty with the Armed Forces in World II, I became acquainted with the U.S. Armed Forces Medical Journal. I have read it regularly since that time, finding in each issue articles of general interest as well as those which

are of a special value because of their dealing with clinical problems in the field of orthopedic surgery. I am sure that every medical officer on active duty and the great majority of those who are now on an inactive civilian status will agree with me that the Armed Forces Medical Journal is "required reading."

JOSEPH S. BARR, M.D., CHIEF, ORTHOPEDIC SERVICE

St. Louis, Missouri

The U.S. Armed Forces Medical Journal is to be congratulated on its tenth anniversary as the professional medical publication of the Department of Defense. Primarily intended for personnel of the medical departments of the Armed Forces, it nonetheless is valuable reading for the civilian profession. Not only may the latter group stay abreast of some of the experimental and clinical research being carried out within the framework of the medical departments but valuable information may be obtained for clinical application in the day-to-day practice of medicine among the citizens of this country. . . . The U.S. Armed Forces Medical Journal is must reading for personnel of the medical departments of the Armed Forces and is highly recommended reading for members of the civilian profession.

OSCAR P. HAMPTON, JR., M.D.

Keeping Pace

Duke University Medical Center
Durham, North Carolina

I wish to join with the many other admirers of the United States Armed Forces Medical Journal on its tenth anniversary. This journal has been of inestimable value not only to those of us interested in military medicine, but also to the faculty and students of Duke University Medical Center, who frequently read the Journal and use the splendid information which it contains. In addition, the U.S. Armed Forces Medical Journal, through the authors of the articles, gives me an opportunity to keep up with my friends in the three services.

W. C. DAVISON, M.D., DEAN

Joint Commission on Accreditation of Hospitals
Chicago, Illinois

Medicine is not an exact science but it is an exacting one. As medical science advances, the medical profession must try and keep pace. One of the best means of accomplishing this is through the reading of well-written articles in professional publications. The United States Armed Forces Medical Journal has proven its ability to fulfill this mission capably over the past ten years and it is hoped that it will continue to do so. Congratulations on your tenth anniversary year for a job well done.

KENNETH B. BABCOCK, M.D., DIRECTOR

University of California Medical Center
Los Angeles, California

Please accept my greetings and congratulations on arriving at the tenth anniversary of the U.S. Armed Forces Medical Journal. Your Journal covers a very useful field for students, educators and practitioners in its reporting of diseases and observations often not found elsewhere in the literature.

STAFFORD L. WARREN, M.D., DEAN, SCHOOL OF MEDICINE

Military Medical News

ADM. KERN NAMED PRESIDENT OF MILITARY SURGEONS, 66TH ANNUAL CONVENTION AWARD WINNERS ANNOUNCED

Rear Admiral Richard A. Kern, MC, USNR (Ret.), professor emeritus of medicine at Temple University School of Medicine, was elected president of the Association of Military Surgeons of the United States for 1960, at the society's 66th annual meeting in Washington, November 9–11. He succeeds Major General Harold H. Twitchell, USAF, MC, surgeon of U.S. Air Forces in Europe. The 1959 meeting was devoted to the theme "The Practice of Military Medicine—Broadening Concepts," and was attended by more than 1,500 delegates.

The meeting was opened with an address by General Twitchell, who discussed the theme of the convention. Dr. Winchell McK. Craig, former president of the Association and special assistant for health and medical affairs to the Secretary of Health, Education, and Welfare, served as moderator of the panel of speakers, which included Lieutenant General Leonard D. Heaton, MC, USA, Army Surgeon General; Rear Admiral Edward C. Kenney, MC, USN, Navy Deputy Surgeon General; and Major General Oliver K. Niess, USAF, MC, Air Force Surgeon General; Leroy E. Burney, M.D., U.S. Public Health Service Surgeon General; and William D. Middleton, M.D., Chief Medical Director of the Veterans Administration. Closed circuit color television featuring recent accomplishments in aviation medicine from Andrews Air Force Base, Washington, D.C., was a feature of the scientific program.

Admiral Kern

Lieutenant Colonel Samuel Hurewitz, MC, USA, commanding officer of the 7th Evacuation Hospital, Germany, won the Sir Henry Wellcome Medal and Prize for his essay on military medical problems of the Lebanon crisis. The Gorgas Medal, awarded annually by Wyeth Laboratories for distinguished work in preventive medicine for the Armed Forces, was awarded to Colonel Albert J. Glass, MC, USA, chief psychiatry and neurology consultant, Professional Division, Office of the Army Surgeon General, for his outstanding work in the field of preventive psychiatry.

Dr. Joseph E. Smadel, associate director of the National Institutes of

Lt. Col. Hurewitz

Col. Glass

Col. Knauf

Health, Bethesda, Maryland, received the Stitt Award, presented by the Pfizer Laboratories, for his many contributions in microbiology and immunology. Winner of the Major Louis Livingston Seaman Prize was Roberts Rugh, Ph.D., associate professor of radiology at Columbia University, New York, for his article "Ionizing Radiations—Their Possible Relation to the Etiology of Some Congenital Anomalies and Human Disorders." Robert Van Reen, Ph.D., a chemist at the Naval Medical Research Institute, Bethesda, Maryland, received the McLester Award, given by the J. B. Roerig Company, Division of Charles Pfizer & Company, Inc., for his work in the field of applied nutrition and dietetics.

The Founders' Medal, given annually by the Association of Military Surgeons for an outstanding contribution to military medicine and for meritorious service to the Association, was presented to three members: Vice Admiral Thomas F. Cooper, MC, USN (Ret.), former commanding officer of the National Naval Medical Center, Bethesda; Colonel Aubrey L. Jennings, USAF, MC, director of professional services, Office of the Air Force Surgeon General; and Colonel Frank M. Townsend, USAF, MC, director, Armed Forces Institute of Pathology, Washington, D.C.

The second annual Sustaining Membership Award, presented by the chairman of the Sustaining Membership Group to a member of the Federal Medical Services who has made some

Adm. Cooper

Col. Jennings

Col. Townsend

outstanding contribution in the field of medical research, was given to Colonel George M. Knauf, USAF, MC, staff surgeon, Air Force Missile Test Center, Patrick Air Force Base, Florida, in recognition of his outstanding contributions in the field of occupational health, and particularly for his work in the protection of personnel involved in the operation of microwave equipment.

The Andrew Craigie Award, established in 1959 by the Lederle Laboratories, Division of American Cyanamid Company, in honor of Andrew Craigie, first apothecary general of the military forces, who served under General George Washington during the Revolutionary War, for outstanding accomplishment in the advancement of professional pharmacy in the Federal Government, was awarded for the first time at this meeting of the Association. It was given to Vernon O. Trygstad, director of the pharmacy service, Department of Medicine and Surgery, Veterans Administration, Washington, D.C.

Official Decorations

The following awards were recently announced by the Departments of the Army and Air Force.

Legion of Merit

Wilburt A. Schroeder, Col., USAF, DC
Arthur B. Tarrow, Col., USAF, MC

Army Commendation Ribbon with Metal Pendant

John Clarkson, Lt. Col., DC, USA
Thomas H. Plemon, Jr., Capt., MSC, USA
Charles H. Ransom, Lt. Col., MC, USA
Marion A. Rogala, Maj., MSC, USAR*

*First oak leaf cluster.

ARMY OFFICERS GET STARS

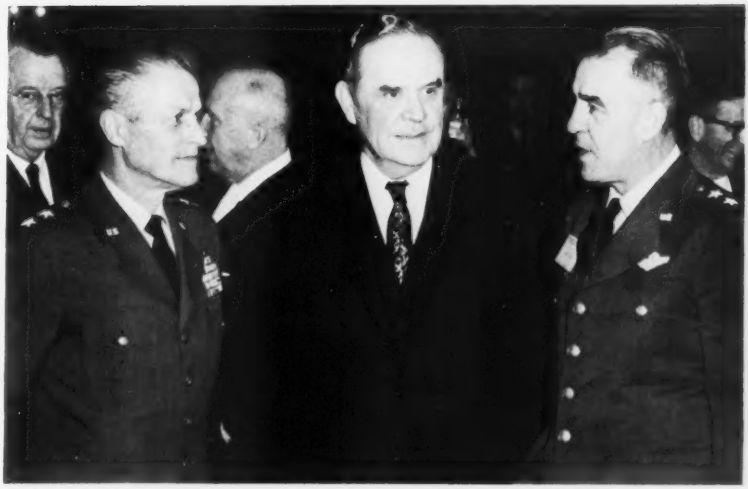
Major General Clement F. St. John, MC, USA, commanding general of Walter Reed Army Medical Center, received the insignia of a two-star general from his predecessor, Lieutenant General Leonard D. Heaton, surgeon general of the Army, and Mrs. St. John, at a promotion ceremony at Walter Reed on 2 November. Brigadier General Robert Skinner, MC, USA, who recently assumed command of Brooke Army Hospital, Fort Sam Houston, Texas, and Brigadier General Russell McNellis, VC, USA, new chief of the Army Veterinary Corps, were also promoted to general officers during November.

NEW MEDICAL QUARTERLY

The Society of Nuclear Medicine announces publication of the first quarterly issue of its official publication, *The Journal of Nuclear Medicine*, this month. Editorial content will be directed towards members of the medical and allied professions interested in diagnostic and therapeutic application of radioisotopes and in human radiobiology. Dr. George E. Thoma, St. Louis, Missouri, is editor of the new quarterly.

AMBERSON JOINS EATON STAFF

Captain Julius M. Amberson, MC, USN (Ret.), who served as chief medical officer in charge of the "Passage to Freedom," in which over a million Vietnamese were evacuated voluntarily from communist territory after the fall of Dien Bien Phu, has joined the staff of physicians at Eaton Laboratories, Norwich, New York, where he will head the international clinical research program. Among some of Dr. Amberson's past achievements is his development of the plasma-sulfadiazine treatment of Asian cholera.



SCHOOL DEDICATION. Representative Paul J. Kilday, center, was the speaker at a dinner in San Antonio attended by civic and military leaders preceding the dedication on 14 November of the new U.S. Air Force School of Aviation Medicine at Brooks Air Force Base. He is shown with Major General Otis O. Benson, Jr., left, commander of the USAF Aerospace Medical Center, and Major General Oliver K. Niess, Air Force surgeon general. Senator Lyndon B. Johnson gave an address at the dedication ceremony.

MILITARY PEDIATRIC GROUP

Twenty-three military medical officers have been elected to charter membership in the American Academy of Pediatrics' new specialty section on military pediatrics. The group, formed to study problems encountered in the practice of pediatrics in the armed services and to develop programs relating to civilian and military management of mass casualties among the pediatric population of the United States, held its first official meeting in Chicago, 7 October.

Military charter members are: Colonel Ogden C. Bruton, Lieutenant Colonels John P. Fairfield and Harry J. Umlauf, Jr., and Majors Frederick C. Biehusen, Bedford H. Berrey, Edward J. Tomsovic, Mary E. Steinheimer and John B. Sarracino, MC, USA; Captains Thomas E. Cone, Jr., Milton Kurzrok, Ernst R. Moeller and William I. Neikirk, Commanders Frederick B. Becker, Jerome Imburg, Andrew M. Margileth, Earl R. Peters and Charles L. Waite, and Lieutenant Commander Joseph G. Rossi, MC, USN; Lieutenant Colonels David W. Davis and Thomas M. Holcomb, Majors James S. Clarke and Howard H. Johnson, and Captain James R. Upp, USAF, MC.

ARMY DENTAL LAB COURSE

The Army will offer a second 20-week advanced dental laboratory course, for enlisted men and women with at least one year's experience at the basic dental laboratory specialist level, beginning 14 March at Brooke Army Medical Center, Fort Sam Houston, Texas. The first course began 11 January.

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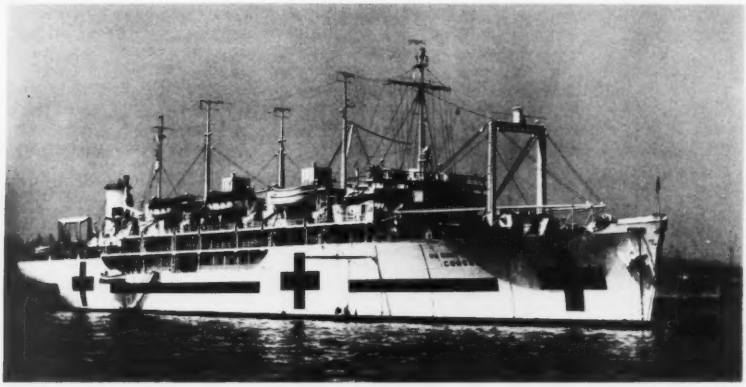

PROJECT HOPE. The U.S.S. *Consolation,* mothballed Navy hospital ship anchored at Hunter's Point in San Francisco Bay, will be outfitted early in 1960 as a floating medical center and sent to Southeast Asia by Project Hope, to bring advanced medical training to the health professions of friendly countries overseas. Captain Paul E. Spangler, MC, USN (Ret.), of Monterey, California, has been selected as senior medical officer of the project, the first physician chosen from more than 1,000 applicants. The ship's permanent hospital staff will consist of 15 physicians, 2 dentists, and about 20 auxiliary medical personnel. About 35 physicians will be flown to the ship every 4 months on a rotating basis.

Officers Certified By Specialty Boards

The surgeons general of the military medical services have announced that the following regular Medical Corps officers have been certified by the specialty boards indicated.

American Board of Anesthesiology

Hummell, Paul R., Capt., USA
Kortis, Howard I., Capt., USA
Lam, Gene N., Maj., USA
Wever, Robert C., Capt., USA

American Board of Internal Medicine

Ekman, Carl N., Col., USA

American Board of Ophthalmology

Hatch, Joseph L., Capt., USA
Stealey, Robert L., Maj., USA

American Board of Otolaryngology

Singleton, George T., Capt., USA

American Board of Pediatrics

Leach, Edwin M., Capt., USN
Stroup, Joseph G., Capt., USA

American Board of Radiology

Medical Nuclear Physics

Pisano, Daniel J., Capt., USA

American Board of Surgery

Branche, Matthew D., Capt., USA
Ditmore, Harry B., Jr., Capt., USA
Lawrence, Arthur G., Capt., USA
Stratton, Albert W., Maj., USA

Thoracic Surgery

Broaddus, Carl A., Jr., Comdr., USN
May, Romulus L., Capt., USN

Progress Notes

Captain **William M. Silliphant,** MC, USN, former director of the Armed Forces Institute of Pathology, was promoted to rear admiral on his retirement 31 October . . . Colonel **Marcus H. Flinter,** MC, USA, former medical advisor to the 2d Chinese Field Army, on Taiwan, has succeeded Lieutenant Colonel **Martin Putnoi,** MC, USA, as commander of the U.S. Army Hospital at Fort Jay, New York . . . Among the members of the consulting editorial board of the new *Journal of Nuclear Medicine* is Captain **E. Richard King,** MC, USN, U.S. Naval Hospital, Bethesda, Maryland . . . Colonel **Warren C. Eveland,** MC, USA, chief of the bacteriology and immunology branch, Armed Forces Institute of Pathology, retired 31 October after more than 22 years of active service . . . Captain **William S. Francis,** MC, USN, commanding officer of the U.S. Naval Dispensary, Mare Island, California, has been elected a fellow of the American College of Preventive Medicine.

Major **Jerome H. Greenberg,** MC, USA, of the Army surgeon general's office, has been named as the first participant in a new training program at the Calcutta School of Tropical Medicine and Hygiene, in India, where he will serve as a resident observer for 3 months. Future spaces will be rotated among Army internists, preventive medicine officers and other clinical specialists . . . Captain **Joseph A. Syslo,** MC, USN, is the new chief of urology at the U.S. Naval Hospital, Philadelphia, reporting from a similar position at the U.S. Naval Hospital, Portsmouth, Virginia . . . An Army student nurse, Miss **Frances J. McLean,** a junior at Arizona State University School of Nursing, has been elected president of the Arizona Association of Student Nurses.

Colonel **Joseph L. Bernier,** DC, USA, chief of the oral pathology division, Armed Forces Institute of Pathology, has been appointed to a special advisory committee by the State Commission of Health for New Jersey, to study the long-term effects of body burns caused by radium and other radioactive material . . . Lieutenant **Francis R. Bobek,** MSC, USN, has been appointed laboratory division officer of the U.S. Military Medical Supply Agency, Brooklyn, New York. . . . **Howerde E. Sauberlich,** Ph.D., formerly associate professor of animal husbandry at Iowa State University, has been appointed chief of the chemistry section, U.S. Army Medical Research and Nutrition Laboratory, Fitzsimons Army Hospital, Denver . . . Captain **Robert B. Wolcott,** DC, USN, U.S. Naval Dental Research Facility, Great Lakes, Illinois, has been chosen president-elect of the American Academy of Gold Foil Operators for 1959–60.

Rear Admiral **Curtiss W. Schantz,** DC, USN, chief of the dental section, Bureau of Medicine and Surgery, conferred in Washington with the Prime Minister of New Zealand, the Right Honorable Walter Nash, P.C., recently, to discuss research work being done by Captain **Fred L. Losee,** DC, USN, at the University of Otago Dental School, Dunedin, New Zealand, at the request of the New Zealand Government . . . Dr. **Donald E. Gregg,** medical officer in the department of cardiorespiratory diseases, Walter Reed Army Institute of Research, was given the Exceptional Civilian Service Award in October, for his contributions in physiology . . . Captain **Robert C. Ray,** MC, USN, has been elected a fellow of the American College of Surgeons.

Colonel **Ruth A. Robinson,** AMSC, USA, chief of the Army Medical Specialist Corps, has been

given the American Occupational Therapy Association's Award of Merit at the organization's national conference in Chicago, 19–23 October . . . Major **Gordon W. Briggs,** MC, USA, has been appointed assistant chief medical consultant in the Army surgeon general's office. He was formerly at the 98th General Hospital in Neubrucke, Germany . . . Captain **Carlos O. Welch, Jr.,** USAF, MC, department of internal medicine, U.S. Air Force School of Aviation Medicine, received the annual Ochsner Foundation Award for excellence in medical writing, given each year to the doctor in training who has written the best medical report.

ACCREDITED HOSPITALS

The Joint Commission on Accreditation of Hospitals, composed of representatives of the American College of Physicians, American College of Surgeons, American Medical Association, and the American Hospital Association, has inspected and accredited the U.S. Air Force Hospitals at the following locations:

Continental United States

Altus Air Force Base, Okla.
Andrews Air Force Base, Md.
Amarillo Air Force Base, Tex.
Barksdale Air Force Base, La.
Bergstrom Air Force Base, Tex.
Brookley Air Force Base, Ala.
Carswell Air Force Base, Tex.
Chanute Air Force Base, Ill.
Davis-Monthan Air Force Base, Ariz.
Dow Air Force Base, Maine
Dyess Air Force Base, Tex.
Edwards Air Force Base, Calif.
Eglin Air Force Base, Fla.
Ellsworth Air Force Base, S. Dak.
Fairchild Air Force Base, Wash.
Forbes Air Force Base, Kans.
Francis E. Warren Air Force Base, Wyo.
Goodfellow Air Force Base, Tex.
Griffiss Air Force Base, N.Y.
Hamilton Air Force Base, Calif.
Homestead Air Force Base, Fla.
Hunter Air Force Base, Ga.
Keesler Air Force Base, Miss.
Lackland Air Force Base, Tex.
Langley Air Force Base, Va.
Larson Air Force Base, Wash.
Laughlin Air Force Base, Tex.
Lockbourne Air Force Base, Ohio
Loring Air Force Base, Maine
Lowry Air Force Base, Colo.
MacDill Air Force Base, Fla.
Malmstrom Air Force Base, Mont.
March Air Force Base, Calif.
Mather Air Force Base, Calif.
Maxwell Air Force Base, Ala.
Mitchel Air Force Base, N.Y.
Mountain Home Air Force Base, Idaho
Offutt Air Force Base, Nebr.
Orlando Air Force Base, Fla.
Otis Air Force Base, Mass.
Patrick Air Force Base, Fla.
Randolph Air Force Base, Tex.
Schilling Air Force Base, Kans.
Scott Air Force Base, Ill.
Selfridge Air Force Base, Mich.
Shaw Air Force Base, S.C.
Sheppard Air Force Base, Tex.
Tinker Air Force Base, Okla.
Travis Air Force Base, Calif.
Turner Air Force Base, Ga.
Westover Air Force Base, Mass.
Whiteman Air Force Base, Mo.
Williams Air Force Base, Ariz.
Wright-Patterson Air Force Base, Ohio

Overseas Commands

Clark Air Force Base, P.I.
Itazuke Air Base, Japan.
Johnson Air Base, Japan.
Ladd Air Force Base, Alaska
Pepperrell Air Force Base, Newfoundland
Ramey Air Force Base, P.R.
Tachikawa Air Base, Japan
Wiesbaden, Germany

The Medical Officer Writes

Articles Published in Other Journals

U. S. Army

EVALUATION OF THE TREPONEMA PALLIDUM IMMOBILIZATION TEST OF SERUM AND CEREBROSPINAL FLUID. Major R. I. Anderson, MSC, USA, Walter Reed Army Institute of Research, and J. F. Kent, Ph.D. *American Journal of Clinical Pathology*, September 1959.

COMPLICATED REGIONAL ENTERITIS. Major L. Arismendi, MC, USAR, Major J. L. Hannon, MC, USA, Colonel H. T. Berwald, MC, USA, and C. B. Mathewson, Jr., M.D., Letterman Army Hospital, San Francisco. *California Medicine*, August 1959.

METALLIC INTRAUTERINE FOREIGN BODY IN TERM PREGNANCY. Captain C. L. Armstrong, MC, USAR, and Colonel P. S. Andreson, MC, USA, Tripler Army Hospital, Hawaii. *American Journal of Obstetrics & Gynecology*, August 1959.

ISONIAZID AND PARA-AMINOSALICYLIC ACID TOXICITY IN 513 CASES: A STUDY INCLUDING HIGH DOSES OF INH AND GASTROINTESTINAL INTOLERANCE TO PAS. Lieutenant Colonel S. J. Berte, MC, USA, and Major H. J. Dewlett, MC, USA, Valley Forge Army Hospital, Phoenixville, Pa. *Diseases of the Chest*, August 1959.

ISOLATION OF A TYPE 2 DENGUE VIRUS BY USE OF HAMSTER KIDNEY CELL CULTURES. Major F. H. Diercks, MSC, USA, Graduate School of Public Health, University of Pittsburgh. *American Journal of Tropical Medicine*, July 1959.

LABORATORY TESTS OF TYPHOID VACCINES USED IN A CONTROLLED FIELD STUDY. G. Edsall, M.D., M. C. Carlson, S. B. Formal, Ph.D., and Lieutenant Colonel A. S. Benenson, MC, USA, Walter Reed Army Institute of Research. *Bulletin of World Health Organization*, June 1959.

THE NEED FOR X-RAY STUDY OF THE EDENTULOUS PATIENT. Lieutenant Colonel R. W. Flinchbaugh, DC, USA., Fort Eustis, Va. *Dental Digest*, July 1959.

IDIOPATHIC HYPERLIPEMIA, SPECIAL REFERENCE TO ABDOMINAL AND CORONARY SYMPTOMS. Major R. J. Gailitis, MC, USA, and W. Schreiber, M.D., U.S. Army Hospital, Nurnberg, Germany. *A.M.A. Archives of Surgery*, July 1959.

HURRY! SEND A CHOPPER! Captain C. O. Greer, Jr., MSC, USA, U.S. Army Aviation School, Fort Rucker, Ala. *U.S. Army Aviation Digest*, October 1959.

INTRAVASCULAR THROMBI AND THE INTESTINAL FACTOR OF IRREVERSIBLE SHOCK. Colonel R. M. Hardaway, MC, USA, U.S. Army Hospital, Fort Belvoir, Va., and D. G. McKay, M.D., U.S. Army Hospital, Frankfurt, Germany. *Annals of Surgery*, August 1959.

THE DEBT WE OWE TO THE VOLUNTEERS. Major General S. B. Hays, MC, USA, Surgeon General, U.S. Army. *Life and Health*, October 1959.

IDENTIFICATION OF BARBITURATES BY PAPER CHROMATOGRAPHY. R. Hilf, Ph.D., G. A. Lightbourn, M.S., and F. F. Castano, Ph.D., 6th U.S. Army Medical Laboratory, Fort Baker, Calif. *Journal of Laboratory and Clinical Medicine*, August 1959.

This department, a feature in the *Journal* several years ago, is resumed in this issue. Titles of articles in current periodicals written by commissioned officers and civilian scientists in the medical services of the Department of Defense will be published each month insofar as space permits. This listing is gleaned from available periodicals and is not necessarily complete. Authors desiring inclusion of published articles are invited to send a reprint to the *Journal*.—EDITOR.

DOCTORS AFIELD; WILLIAM WALKER, FILIBUSTERING PHYSICIAN. Captain R. J. T. Joy, MC, USA, Walter Reed Army Institute of Research. *New England Journal of Medicine*, August 6, 1959.

BLOOD CIRCULATION IN THE DENTAL PULP. G. Kozam, D.D.S., and Major G. W. Burnett, MC, USA, Walter Reed Army Institute of Research. *Journal of the American Dental Association*, September 1959.

TEACHING PATIENTS WITH TUBERCULOSIS. Captain A. Kressler, NC, USA, Valley Forge Army Hospital, Phoenixville, Pa. *American Journal of Nursing*, August 1959.

TUBERCULOSIS: EARLY TREATMENT. Captain L. L. Laughlin, MC, USA, Lieutenant Colonel J. F. Harris, MC, USA, Colonel H. W. Glascock, Jr., MC, USA, and J. K. Thomsen, M.D., U.S. Army Hospital, Landstuhl, Germany. *Diseases of the Chest*, September 1959.

BODY ARMOR: HOW IT WORKED. Captain R. W. Little, MSC, USA, 3d Medical Battalion, 3d Infantry Division. *Military Review*, September 1959.

PHYSICAL MEDICINE IN THE ARMY: HISTORY AND DEVELOPMENT. Lieutenant Colonel A. F. Mastellone, Walter Reed Army Hospital, Washington, D.C. *Military Medicine*, September 1959.

PHYSICAL STANDARDS—EVALUATION OF FITNESS FOR DUTY—PENSION. Colonel C. Meador, MC, USA, Walter Reed Army Medical Center. *Military Medicine*, September 1959.

THE TREATMENT OF MUMPS ORCHITIS WITH PREDNISONE. Captain E. S. Mongan, MC, USA, William Beaumont Army Hospital, Texas. *American Journal of Medical Science*, June 1959.

ENZYME-TREATED RED BLOOD CELLS OF SHEEP IN THE TEST FOR INFECTIOUS MONONUCLEOSIS. Major L. H. Muschel, MSC, USA, and First Lieutenant D. R. Piper, MSC, USA, Walter Reed Army Institute of Research. *American Journal of Clinical Pathology*, September 1959.

ALLERGY TO EFFORT. Captain R. L. Rainey, MC, USAR, and Lieutenant Colonel D. L. Deutsch, MC, USA, Ireland Army Hospital, Fort Knox, Ky. *Annals of Internal Medicine*, July 1959.

MYOCARDITIS ASSOCIATED WITH MYOSITIS OF THE SMALL INTESTINE AND THE URINARY BLADDER: REPORT OF A CASE. Captain H. S. Ramos, USAF, MC, Captain R. Scalettar, MC, USA, Captain D. G. Martz, MC, USA, and Brigadier General T. W. Mattingly, MC, USA (Ret.), Walter Reed Army Hospital. *American Heart Journal*, September 1959.

EXPERIENCES WITH THE "VIGOROUS DIAGNOSTIC APPROACH" TO UPPER GASTROINTESTINAL HEMORRHAGE. Lieutenant Colonel N. M. Scott, MC, USA, Brooke Army Hospital, Texas. *Annals of Internal Medicine*, July 1959.

U.S. Navy

ANTARCTIC "DAY" OF A NAVAL DENTIST. Lieutenant R. J. Adams, DC, USN, and Captain W. R. Stanmeyer, DC, USN, U.S. Naval Medical Research Laboratory, New London, Conn. *American Dental Association*, August 1959.

GIANT HYDRONEPHROSIS COMPLICATING PREGNANCY. Lieutenant Commander R. L. Bernstine, MC, USN, Lieutenant G. A. LaBlanc, MC, USN, and Captain J. F. Richardson, MC, USN, U.S. Naval Hospital, St. Albans, N.Y. *American Journal of Obstetrics and Gynecology*, August 1959.

BLOOD DYSCRASIAS ASSOCIATED WITH TOLBUTAMIDE THERAPY. Lieutenant R. C. Brod, MC, USN, U.S. Naval Hospital, Philadelphia. *Journal of the American Medical Association*, September 1959.

THE EFFECT OF TEMPERATURE ON TOLERANCE TO POSITIVE ACCELERATION. Commander B. F. Burgess, Jr., MSC, USN, Aviation Medical Acceleration Laboratory, U.S. Naval Air Development Center, Johnsville, Pa. *Aerospace Medicine*, August 1959.

HYPERTENSION, PREGNANCY, AND PHEOCHROMOCYTOMA. Captain G. L. Calvy, MC, USN, Lieutenant M. E. Resnick, MC, USNR, Lieutenant D. R. Knab, MC, USN, and Captain J. F. Richardson, MC, USN, U.S. Naval Hospital, St. Albans, N.Y. *Journal of the American Medical Association*, September 1959.

ADULT STAPHYLOCOCCAL PNEUMONIA. Lieutenant J. A. Gold, MC, USNR, and Lieutenant J. W. Davis, MC, USN, U.S. Naval Hospital, Bethesda, Maryland. *Medical Annals of the District of Columbia*, July 1959.

HYPEROSTOSIS OF THE MANDIBLE. Captain H. G. Green, DC, USN, U.S. Naval Hospital, Camp Pendleton, Calif. *Oral Surgery*, August 1959.

SARCOMA BOTRYOIDES, A CASE REPORT. Captain H. H. Hill, MC, USN, Commander T. B. Lebherz, MC, USN, and Lieutenant E. B. McMahon, MC, USN, U.S. Naval Hospital, Bethesda, Maryland. *American Journal of Obstetrics & Gynecology*, September 1959.

USE AND POSSIBLE ABUSE OF FIBRINOGEN. Lieutenant M. C. Karrer, MC, USN, and Commander T. B. Lebherz, MC, USN, U.S. Naval Hospital, Bethesda, Maryland. *Medical Annals of the District of Columbia*, July 1959.

TORSION OF THE FALLOPIAN TUBE DIAGNOSED BY CULDOSCOPY. Commander T. B. Lebherz, MC, USN, and Lieutenant Commander A. Varga, MC, USN, U.S. Naval Hospital, Bethesda, Maryland. *Medical Annals of the District of Columbia*, July 1959.

IDENTICAL BILATERAL ORAL CARCINOMA. Captain T. A. Lesney, DC, USN, U.S. Naval Hospital, San Diego, Calif. *Oral Surgery*, July 1959.

CARDIAC ARREST AND CARDIAC RESUSCITATION. Commander J. E. McClenathan, MC, USN, and Lieutenant Commander E. J. Rupnik, MC, USN, U.S. Naval Hospital, Bethesda, Maryland. *Medical Annals of the District of Columbia*, July 1959.

REHABILITATION—PLASTIC PROSTHESES. Captain V. J. Niiranen, DC, USN, U.S. Naval Dental School, Bethesda, Maryland. *Military Medicine*, September 1959.

SUBCUTANEOUS, MEDIASTINAL AND PROBABLE SUBPERICARDIAL EMPHYSEMA TREATED WITH RECOMPRESSION. Lieutenant J. C. Norman, MC, USNR, and Lieutenant P. J. Rizzolo, MC, USNR, U.S. Naval Submarine Base, New London, Conn. *New England Journal of Medicine*, August 6, 1959.

BICIPITAL TENOSYNOVITIS. Lieutenant K. F. Spence, Jr., MC, USN, U.S. Naval Hospital, Bethesda, Maryland. *Medical Annals of the District of Columbia*, July 1959.

U. S. Air Force

WE'VE MADE CHILDREN WELCOME. Captain L. Berlow, USAF, MSC, U.S. Air Force Hospital, Wright-Patterson Air Force Base, Ohio. *Military Medicine*, August 1959.

QUANTITATIVE ESTIMATION OF URINARY METABOLITE OF ADRENALINE AND NORADRENALINE AS POSSIBLE INDICATION OF TOLERANCE TO GRAVITATIONAL

STRESS. First Lieutenant M. L. Berman, USAF, MSC, Aerospace Medical Laboratory, Wright-Patterson Air Force Base, Ohio. *Aerospace Medicine*, August 1959.

PETRIFIED STOMACH. Captain R. L. Butler, USAF, MC, Harvard Medical School, and R. Cotran, M.D., Boston City Hospital. *New England Journal of Medicine*, July 9, 1959.

SPONTANEOUS PNEUMOTHORAX IN APPARENTLY HEALTHY FLYING PERSONNEL. Captain G. Dermksian, USAF, MC, and L. E. Lamb, M.D., U.S. Air Force School of Aviation Medicine, Randolph Air Force Base, Texas. *Annals of Internal Medicine*, July 1959.

IMPROVISED INFANT PROCTOSCOPE. Captain D. W. Furnas, USAF, MC, 6580th U.S. Air Force Hospital, Holloman Air Force Base, N. M. *A. M. A. Journal of Diseases of Children*, June 1959.

PRELIMINARY STUDY OF HUMAN SERA IN SUBJECTS EXPOSED TO SIMULATED ALTITUDE. W. G. Glenn, Ph.D., U.S. Air Force School of Aviation Medicine, Brooks Air Force Base, Texas. *Aerospace Medicine*, August 1959.

EFFECTS OF PILOTING SUPERSONIC AIRCRAFT ON PLASMA CORTICOSTEROIDS AND BICARBONATE. H. B. Hale, J. P. Ellis, Jr., and Captain C. H. Kratochvil, USAF, MC, U.S. Air Force School of Aviation Medicine, Randolph Air Force Base, Texas. *Journal of Applied Physiology*, July 1959.

AN ELECTRICALLY BALANCED BIPOLAR VECTROCARDIOGRAPHIC SYSTEM: LEAD-A ANALYSIS AND LEAD SYNTHESIS USING THE dR FACTOR. L. E. Lamb, M.D., and Major G. B. Smith, Jr., USAF, MC, U.S. Air Force School of Aviation Medicine, Randolph Air Force Base, Texas. *American Journal of Medical Sciences*, June 1959.

PRIMARY CARCINOMA OF THE LIVER. Captain D. P. Minichan, Jr., USAF, MC, R. L. A. Keeley, M.D., H. H. Trout, Jr., M.D., and D. Leavitt, M.D., Jefferson Hospital, Roanoke, Va. *A. M. A. Archives of Surgery*, July 1959.

STUDIES OF ISOLATION AND CONFINEMENT. Captain G. E. Ruff, USAF, MC, Captain E. Z. Levy, USAF, MC, and Captain V. H. Thaler, USAF, MSC, Aerospace Medical Laboratory, Wright-Patterson Air Force Base, Ohio. *Aerospace Medicine*, August 1959.

WHOLE SALIVA VOLUME, SODIUM, POTASSIUM, AND CHLORIDE: DAY-TO-DAY COMPARISONS UNDER IDENTICAL AND DIVERSE FORMS OF STIMULATION. Captain I. L. Shannon, USAF, DC, and, J. R. Prigmore, U.S. Air Force School of Aviation Medicine, Randolph Air Force Base, Texas. *Journal of Dental Research*, July–August 1959.

SIGNIFICANT CAUSES FOR PHYSICAL DISQUALIFICATION FOR FLYING IN U.S. AIR FORCE OFFICERS, 1956–1957. Lieutenant Colonel F. S. Spiegel, USAF, MC, Office of the Surgeon General, Department of the Air Force, Washington, D.C. *Aerospace Medicine*, July 1959.

KARTAGENER'S SYNDROME. Lieutenant Colonel B. G. Streete, USAF, MC, and Major F. E. Stull, Jr., USAF, MC, U.S. Air Force Hospital, Wiesbaden, Germany. *A. M. A. Archives of Surgery*, July 1959.

SPACE MEDICAL RESEARCH. E. Strughold, M.D., Ph.D., and Major General O. O. Benson, Jr., USAF, MC, U.S. Air Force School of Aviation Medicine, Randolph Air Force Base, Texas. *New England Journal of Medicine*, September 3, 1959.

PHYSIOLOGIC RESPONSE TO SUBGRAVITY. Major J. E. Ward, USAF, MC, Major W. R. Hawkins, USAF, MC, and Major H. D. Stallings, USAF, U.S. Air Force School of Aviation Medicine, Brooks Air Force Base, Texas. *Aerospace Medicine*, August 1959.

This Is Your A.M.A.

THE JUDICIAL COUNCIL is the judicial branch of the American Medical Association and is frequently referred to as its court of last resort. The first permanent judicial body of the Association, the Committee on Ethics, was appointed in 1858. In 1873 that committee was replaced by the Judicial Council, which has, since that time, interpreted the Principles of Medical Ethics of the Association and acted as an appeal body on ethical and membership questions previously considered at county and state level. The Council consists of 5 members, elected by the Association's House of Delegates, on nomination of the president of the American Medical Association, for terms of 5 years.

The Judicial Council has original jurisdiction in questions involving membership and controversies arising under the American Medical Association's Constitution and Bylaws or its Principles of Medical Ethics when the Association is a party. It also has original jurisdiction to consider controversies between 2 or more constituent associations or their members.

The Council has appellate jurisdiction in questions of law and procedure, but not of fact, in cases which arise between a state medical association and one or more of its county societies; between a member and the component society to which that member belongs; or between members of different county medical societies of the same state medical association.

In its discretion, the Judicial Council may investigate general professional conditions and all matters pertaining to the relations of physicians to one another or to the public, and it may make such recommendations to the House of Delegates as it deems necessary. It may request the president of the Association to appoint investigating juries to which it may refer complaints or evidences of unethical conduct that in the judgment of the Council are greater than of local concern.

Rules and methods of procedure of the Council first adopted in 1912 were revised in October 1954. The revised rules were published in *The Journal of the American Medical Association*, and then reprinted in pamphlet form for the convenience of members of the Association who may wish to use them.

In June 1958, the Judicial Council published "Opinions and Reports of the Judicial Council—Abstracted and Annotated" as a special edition of *The Journal of the American Medical Association*. Reports of the Judicial Council to the House of Delegates are abstracted and opinions of the Council previously published in the *Journal* are reproduced under appropriate sections of the Principles of Medical Ethics. The purpose of this document is to serve as a practical, usable reference document for the guidance of all members of the medical profession and medical societies.

Among the more frequent inquiries presented to the Council are those concerning "advertising." Actually, the Principles of Medical Ethics do not proscribe advertising. They prohibit solicitation of patients. Where the line between dignified, acceptable professional advertising and attempts to solicit patients is to be drawn has been held to be the obligation of the county medical society in all but exceptional cases.

More and more physicians are inquiring about the ethical propriety of patenting a device they have invented or of holding a financial interest in a pharmaceutical company. A physician may ethically obtain a patent provided he does not thereby

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From the Council on National Defense of the American Medical Association. The views and opinions expressed are not necessarily those of the Department of Defense.—EDITOR.

retard or inhibit research or restrict the benefits derivable from the patented article. A physician may hold a financial interest in a pharmaceutical concern as long as he does not exploit his patient or does not exercise any unusual control over the company. In connection with the holding of a financial interest in a pharmaceutical company, the Council has urged county medical societies to examine all the facts incident to such ownership, if it is questioned, to ensure that both patient and profession are protected against those who place personal interests first.

Appeals to the Judicial Council are not too frequent. When they do occur every effort is made to ensure that each party has opportunity to explain his position fully.

For reasons that have never been explored, physicians of the armed services are rather infrequent correspondents of the Judicial Council. Possibly the inherent differences between their type of practice and private practice constitute a partial explanation of the reason for this. Nonetheless, the Judicial Council is available to them whenever they seek answers to questions concerning ethical conduct.

Monthly Message—continued from page ii

The enactment of the Medical and Dental Officer Career Incentive Act, Public Law 497, in 1956, was a further step taken to alleviate the situation and build up the strength of the Regular Medical and Dental Corps. In the 1954–1959 period the average resignation rate among the services for Regular officers declined: Medical from 12.5 to 2.3; and Dental, from 7.3 to 0.5. In the same period applications for Regular officers' commissions have increased: Medical Corps from 3,272 to 4,787; and Dental Corps from 1,369 to 2,065.

Thus, today—because of the various programs instituted—the needs of the armed services can largely be met both by true volunteers and by the group of "obligated volunteers," who realize that the special draft is still available provided these requirements cannot be met by the other programs.

Frank B. Berry

FRANK B. BERRY, M.D.
Assistant Secretary of Defense
(Health and Medical)

Book Reviews

DISEASES OF MEDICAL PROGRESS, A Survey of Diseases and Syndromes Unintentionally Induced as the Result of Properly Indicated, Widely Accepted Therapeutic Procedures, by *Robert H. Moser*, B.S., M.D., Major, Medical Corps, U.S. Army, with a foreword by *F. Dennette Adams*, M.D. 131 pages. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $4.75.

The rather confusing title of this book is clarified by the subtitle. It is a review of the literature that the author encountered from 1956 through 1958, reporting cases answering the criteria stated in the subtitle. It is not intended to be comprehensive, but merely a sampling of the material which the "average" internist might see. The text contains 15 brief chapters, which divide the material into disorders induced by various types of therapies, as well as into the various organ systems involved. The text contains a total of only 58 pages. The bibliography contains 707 references and occupies an additional 58 pages. Finally, there is a very adequate index. Actually, the average reader will probably not learn a great deal from the book, in the sense that there is little he will not recall having heard or read of, if not seen. However, it is clearly and pleasantly written, and may serve as a valuable reminder of possible untoward effects of many commonly employed drugs and other therapeutic procedures. The text itself is not comprehensive enough to serve as a reference work; however, the extensive bibliography may be a useful adjunct in this respect.

CAPT. JAMES L. SPENCER, MC, USN

INBORN ERRORS OF METABOLISM, by *David Yi-Yung Hsia*, M.D. 358 pages; illustrated. Year Book Publishers, Inc., Chicago, Ill., 1959. Price $9.50.

This rather unique book presents a fresh approach to a number of metabolic diseases which, in the past, were considered to have nothing in common other than that they were poorly understood. Dr. Hsia has outlined, with adequate discussion, more than 90 diseases in which there is definite evidence of hereditary background. After a brief discussion of the science of genetics and the general problem of hereditary transmission of disease, the author proceeds in a clear, logical manner to group and discuss such maladies as the hemoglobinopathies, tyrosinosis, Fanconi's syndrome, porphyria, hemophilia, diabetes insipidus, methemoglobinemia and many others too numerous to mention here. Following the discussion of each item is a convenient, brief, up-to-date bibliography. In the appendix are described 74 diagnostic laboratory procedures for quick reference. This book is of particular value to those physicians who desire to implement their knowledge and systematize their thinking concerning the hereditary aspects of many important diseases.

CAPT. ROBERT J. WHIPPLE, MC, USA

CANCER, DIAGNOSIS AND TREATMENT, edited by *John B. Field*, M.D., Ph.D., with 28 contributors. 796 pages; illustrated. Little, Brown & Co., Boston, Mass., 1959. Price $18.50.

The oft-recurring medical mystery of why something was not done before is raised by the publication of this single volume on cancer prepared especially

for the medical student. Until now, special works have been published about cancer for almost everyone except the medical student. While long in coming, this book fulfills its purpose admirably. Broad coverage of the clinical cancer field has been obtained by the wise selection of 28 authorities who have contributed the various chapters. The editor was assured of success in his undertaking from the moment these distinguished contributors agreed to write their pieces. Such outstanding teachers as Edward D. Churchill, R. Lee Clark, Jr., Bradley Coley, Charles A. Doan, Alton Ochsner, Danely Slaughter, Willet F. Whitmore, as well as many others, have put forth their best as only they can when teaching medical students. The result is that the reader is given a convenient, easily read, authoritative source book on cancer which will provide better understanding and background in cancer in general and specific help in the management of individual cancer cases. Controversy flourishes in cancer as in perhaps no other area of medical endeavor. In most instances, the authors were able to rise above it and present balanced, scientifically solid treatises. An exception is the chapter on breast cancer. Here, the triple biopsy, the wedge biopsy, and the ritualistic 5-hour mastectomy are presented without qualifications. Cancer coordinators should find this book most valuable and useful to them in their teaching programs. The book can be recommended to all medical students as a desirable, worthwhile textbook.

CAPT. ROALD N. GRANT, MC, USN, (RET.)

TREATMENT OF CANCER AND ALLIED DISEASES, edited by *George T. Pack*, M.D., F.A.C.S., and *Irving M. Ariel*, M.D., F.A.C.S. 2d edition. 316 pages; illustrated. Volume II, TUMORS OF THE NERVOUS SYSTEM, with 30 contributors. Paul B. Hoeber, Inc., Medical Book Department of Harper & Bros., New York, N.Y., 1958. Price $15.

Despite the multiple contributions, this volume avoids any uneven qualities and presents a concise, readable picture of the clinical entity being discussed. In discussions of the most recent diagnostic technics, there are adequate illustrations and expositions of the theoretic and anatomic backgrounds. Ample illustrations, charts, and tables provide the reader with a clear idea of the aims of the various authors. The scope of the volume is not limited merely to the intrinsic tumors in or around the nervous system but the volume also treats of the various neoplasms throughout the body which may affect the central and peripheral nervous systems. Consideration is given to those procedures whereby intractable pain, due to disease in the body, may be relieved by neurosurgical procedures. This volume is of definite value to the neurosurgeon in training and because of its comprehensiveness and straightforward style, it should be a ready reference work for the general practitioner, internist, and general surgeon.

LT. COL. GEORGE J. HAYES, MC, USA

GENETICS, RADIOBIOLOGY AND RADIOLOGY PROCEEDINGS, Mid-Western Conference, by *Wendell G. Scott*, M.D., Chairman, and *Titus Evans*, Ph. D., Cochairman. 149 pages; illustrated. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $5.50.

This conference was one of three in which teachers of genetics, radiobiology and medical radiology convened to discuss measures that could be instigated to comply with the recommendations set forth in the June 1956 reports of the National Research Council and of the British Medical Research Council on the

hazards of atomic radiations. Among the participants are such names as W. C. Russell, A. Brues, I. Herskowitz, J. F. Crow, and W. G. Scott. Presentations and discussions are printed in full, lending to the proceedings a dramatic immediacy, which excellently depicts the complexity of the radiation safety problem as seen from the standpoint of the three disciplines. The brief text gives the proceedings of one session on the fundamentals of radiation genetics and another on the problem of reducing radiation genetic effects in the medical use of x-rays. Only the main contours and selected problems can be outlined. The professional reader will enjoy recognizing the different approach of the medical radiologist and the geneticist to the main issue. This reviewer believes that such a direct contact of representatives of the two disciplines on the level of a round-table discussion contributes eminently toward finding the right attitude, which has to be realistic as well as responsible, avoiding progressiveness as well as hysteria. For the general reader the book is especially valuable as a concise authoritative treatise and source of information on an acute and complex problem, about which "many individuals have developed an almost psychiatrical fear."

HERMAN J. SCHAEFER, M.D.

READINGS IN PSYCHOANALYTIC PSYCHOLOGY, edited by *Morton Levitt*, Ph. D., with 24 contributors. 413 pages. Appelton-Century-Crofts, Inc., New York, N.Y., 1959.

This book aims in a modest way to provide some reliable source materials on psychoanalysis for students of the behavioral sciences. The 24 contributors, with 1 exception, are all trained in the psychoanalytic science. It is difficult to do justice to any book of readings which attempts brief presentations of psychoanalytic issues and problems without running the risk of superficiality or unfairness. The editor provides some continuity in the book by prefacing each paper with his brief, interpretive résumé of each contribution. He introduces the book with two excellent chapters on a biographic study of Freud and his psychologic system. Subsequent chapters treat of developmental psychology, including psychosexual development and adolescence. In the section on the ego and defensive processes, we find significant contributions by men like Hartmann, Hoffer and Novey. Glover's paper offers a psychoanalytic approach to the classification of mental disorders. Very few persons will find time to read many of the 24 volumes of Freud's writings, not all of which have yet been translated into English. Because of "poor" translations and "resistance" to psychoanalysis, a variety of misinterpretations have been attributed to Freud's psychologic system. Many have become acquainted only with one or another phase of psychoanalytic theory. Insofar as psychoanalysis seeks to become a "psychological science" by which Freud meant to include psychology and psychiatry, this book does fulfill a basic source to help codify clinical insights about behavioral phenomena. Because psychology is not logic, and those dissatisfied with mere intellectual understanding would hardly enter into analysis and experience what Freud has found, this book provides some clues as to why psychoanalysis is so difficult to understand at times. Psychoanalysis is a hard taskmaster which even in its practice demands the accuracy, the fidelity, and the devotion of a true research worker. Freud epitomized that artistic, genius role. Clinicians accept the artistry of practice, but operational concepts and testable hypotheses are needed to fuse psychology and psychoanalysis into a science. All members of the mental health team will want to scrutinize the contents of this text, especially the original papers, which are not found elsewhere.

LT. COL. FRANK KILLIAN, JR., USAF, MSC

THE YEAR BOOK OF UROLOGY (1958–1959 Year Book Series) edited by *William Wallace Scott*, M.D., Ph. D. 364 pages; illustrated. Year Book Publishers, Inc., Chicago, Ill., 1959. Price $7.50.

This new volume continues to maintain the high standards set by its predecessors. The subject matter is divided into articles of general consideration and those pertaining to specific organs. There is an interesting account by Dr. J. H. Campbell Colston of his trip to Sweden to attend the 11th Congress of the International Society of Urology, and his observations, during a 12-day visit, on Leningrad and Moscow, the people and some of the hospitals he visited. Among the more important articles reviewed are those concerning the diagnostic value of the calcium loading test in evaluation of equivocal hypercalcemias affirmed; a study of the complications in translumbar aortography and retroperitoneal pneumography in which technics to minimize these complications are offered; recommendation of the use of postoperative x-ray therapy in malignancies of the kidney in order to increase the survival rate; the diagnosis of renal hypertension by translumbar arteriography and differential kidney excretion studies; a new contrast medium, Duografin, for simultaneous urography and cholecystocholangiography, mentioned in two preliminary reports; the value of percutaneous renal biopsy in 500 cases; an excellent discussion on the kidney and potassium; the diagnosis of adrenal tumors and steroid therapy in virilizing adrenal hyperplasia; the use of ileal loop for diversion of urine; studies of series of cases of malignancies of the bladder, prostate, testes and penis; the medical and legal aspects of vasectomy by Charles Reiser (this is especially recommended for those performing this operation); the problem of assignment of sex to an individual by E. C. Hamblen, which, with the editor's comment, is most informative. For those physicians interested in any phase of urology, and especially urologists, this book provides an extensive and thorough review of the current urologic literature in concise and lucid abstract form. Throughout, the editorial comments are illuminating and invaluable in evaluating the original articles and in addition, they point out additional references on the subject in the past literature.

LT. COL. SIDNEY MILLER, MC, USA

CIBA FOUNDATION SYMPOSIUM ON THE BIOSYNTHESIS OF TERPENES AND STEROLS, edited by *G. E. W. Wolstenholme*, O.B.E., M.A., M.B., B.Ch., and *Maeve O'Connor*, B.A. 311 pages; illustrated. Little, Brown & Co., Boston, Mass., 1959. Price $8.75.

The proceedings of this select field were presented at a symposium in 1958 by 37 participants who are considered as outstanding workers in this field. Important recent findings in the realm of intermediary metabolism are presented. The contents cover studies in the biogenesis and transformation of squalene, the significant discovery and elucidation of mevalonic acid, alterations of cholesterol biosynthesis in liver cell fractions from rats in various experimental conditions, the enzymatic synthesis of branched-chain acids, formation and metabolism of bile salts, the biosynthesis and biogenesis of terpenes in molds and higher plants, and the biosynthesis of carotenoids by microorganisms. The discussions, in particular, are written in a lively speculative fashion. Most of the experimental work under consideration is based on isotopic tracer studies. This symposium should be of interest to biochemists and bacteriologists concerned with the general aspects of the subject but should prove to be most valuable to those working in the field.

MAJ. RICHARD E. KRAUSE, USAF, MSC

OFFICE ORTHOPEDICS, by *Lewis Cozen*, M.D., F.A.C.S. 3d edition. 430 pages; illustrated. Lea & Febiger, Philadelphia, Pa., 1959. Price $9.50.

This volume, the third revision and reprinting since 1950, presents, as its title implies, a review of practical and worthwhile procedures that may be used in the orthopedic office and in outpatient clinics. The illustrations are adequate and most of them are of definite descriptive and teaching value. The book is written in an inviting style that gives it easy readability and sustained interest. Although not a textbook of advanced orthopedic surgery, it fills a definite need for a basic fundamental text on common understanding of everyday orthopedic diagnostic problems, their recognition, and, where possible, their simple treatment. Many of the 33 chapters give a stimulating systematic review of basic orthopedic pathology; for example, the chapters on limp and on crooked back in childhood, and those on painful arm and leg, deformed arm and leg, and weak arm and leg in adults. The listing of pathologic conditions is concise and thorough, and the bibliography at the end of each section is extensive. The historical background of all subjects is considered briefly. This volume can be highly recommended for all orthopedic residents in training. It is an excellent reference volume and many of the diagnostic and therapeutic tips are worth remembering. In summary, it is a most readable, concise, stimulating volume for the orthopedist, as well as for the general surgeon and general practitioner.

COL. HAROLD S. MC BURNEY, MC, USA

PATHOLOGIC PHYSIOLOGY OF ORAL DISEASE, by *Richard W. Tiecke*, B.S., D.D.S., M.S., F.A.C.D., *Orion H. Stuteville*, B.S., D.D.S., M.D.S., M.D., and *Joseph C. Calandra*, M.D., Ph. D. 480 pages; illustrated. C. V. Mosby Co., St. Louis, Mo., 1959. Price $11.50.

This oral pathology text, in its first edition, is coauthored by an oral pathologist, a maxillofacial surgeon, and a general pathologist. This broad background of experience provides a welcome addition to the enlarging group of oral disease texts. The preface states that only generally accepted theories related to the etiology of diseases will be included. This position, carefully followed in the basic material, gives the book a refreshing quality. The reader will note with pleasure the lack of confusing controversial discussion. Occasional conflicting statements, such as the synonymous interchange of the terms hypertrophy and hyperplasia during the discussion of dilantin effects upon the gingiva, do not detract from the meat of this volume. Its greatest value lies in the tabulations summarizing disease, etiology, clinical features, laboratory findings, and treatment at the end of each chapter. Such tables will permit the reader to correlate and cement in his mind the sufficiently detailed material in the text. The usual and relatively frequent oral disorders are well covered without verbosity. The organization and continuity of material are good. The major defect is the paucity of suitable photomicrographs to illustrate the various lesions. The technical quality of those included is sometimes short of desirable, as well as is the insufficient magnification in certain lesions. The clinical illustrations and radiographs are well reproduced and are sufficiently numerous to augment the reading material. The bibliography is adequate and recent, with important review articles included. This text will be of great value to general dentists and to members of the various dental specialties. Its usefulness as a teaching text for dental students cannot be overrated. Physicians who desire a ready reference to oral disease in their practice also will find this book useful.

MAJ. WILLIAM G. SPRAGUE, USAF, DC

New Books

Books received by the U.S. Armed Forces Medical Journal *are listed in this department for the information of readers, and as acknowledgment and appreciation of their receipt from the publishers. Those of greatest interest will be selected for review in a subsequent number of the* Journal.

Open Reduction of Common Fractures, by *Oscar P. Hampton, Jr.*, M.D., F.A.C.S., and *William T. Fitts, Jr.*, M.D., F.A.C.S. 212 pages; illustrated. Grune & Stratton, Inc., New York, N.Y., 1959. Price $8.75.

Dental Roentgenology, by *LeRoy M. Ennis*, D.D.S., F.D.S., R.C.S. (Eng.) and *Harrison M. Berry*, Jr., D.D.S., M. Sc. 5th edition. 607 pages; illustrated. Lea & Febiger, Philadelphia, Pa., 1959. Price $15.

Combined Textbook of Obstetrics and Gynaecology, for Students and Practitioners, edited by *Dugald Baird*, B. Sc., M.D., D.P.H., F.R.C.O.G. 6th edition. 936 pages; illustrated. Williams & Wilkins Co., Baltimore, Md., 1959. Price $15.

Mechanisms of Hypersensitivity, Henry Ford Hospital, international symposium, edited by *Joseph H. Shaffer*, M.D.; *Gerald A. LoGrippo*, M.D.; and *Merrill W. Chase*, Ph. D. 754 pages; illustrated. Little, Brown & Co., Boston, Mass., 1959. Price $18.50.

The Psychiatric Nurse in the General Hospital, by *Mary A. Tudbury*, R.N., A.B., M.S., with a preface by *Leo Alexander*, M.D. 83 pages. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $3.50.

Poisonous Amphibians and Reptiles, recognition and bite treatment, by *Floyd Boys*, M.D., and *Hobart M. Smith*, Ph. D. 149 pages; illustrated. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $4.75.

Basic Surgery, edited by *Leslie Oliver*, M.B., B.S., (Lond.), F.R.C.S. (Eng.), F.A.C.S., with eight contributors. 1,359 pages; illustrated. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $26.50.

Atlas of Roentgenographic Measurement, by *Lee B. Lusted*, M.D., and *Theodore E. Keats*, M.D. 176 pages; illustrated. Year Book Publishers, Inc., Chicago, Ill., 1959. Price $9.

J.-M. Charcot, 1825–1893, His Life—His Work, by *Georges Guillain*, M.D. Edited and translated by *Pearce Bailey*, Ph. D., M.D. 202 pages; illustrated. Paul B. Hoeber, Inc., Medical Book Department of Harper & Bros., New York, N.Y., 1959. Price $7.

Psychoanalysis and Contemporary Thought, by *D. W. Winnicott*, F.R.C.P.; *John Bowlby*, M.A., M.D.; *Ilse Hellman*, Ph. D.; *Marion Milner*, B. Sc.; *Roger Money-Kyrle*, M.A., Ph. D.; *Elliott Jaques*, M.A., M.D., Ph. D.; and *Joan Riviere*, with an introduction by *Sylvia Payne*, C.B.E., M.B., B.S., and edited by *John D. Sutherland*. 149 pages; illustrated. Grove Press, Inc., New York, N.Y., 1959. Price $1.45 paper; $3.50 cloth.

Scientific Directory and Annual Bibliography, National Institutes of Health 1959. Public Health Service Publication No. 667; Public Health Bibliography Series No. 24. U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health.